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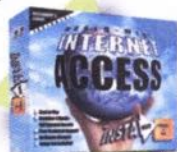
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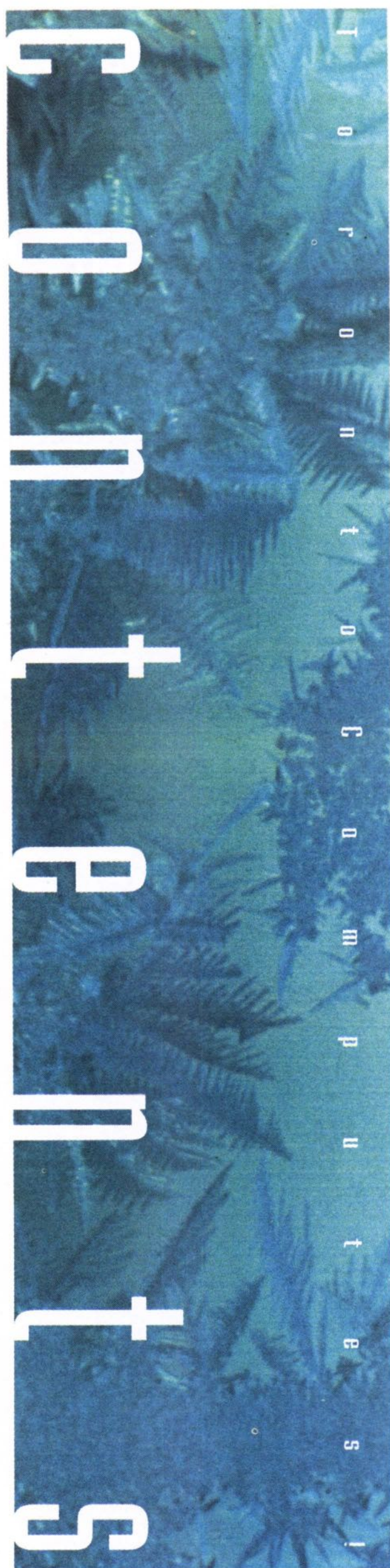


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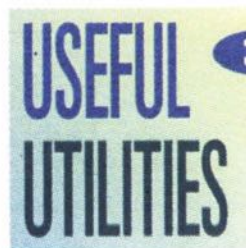
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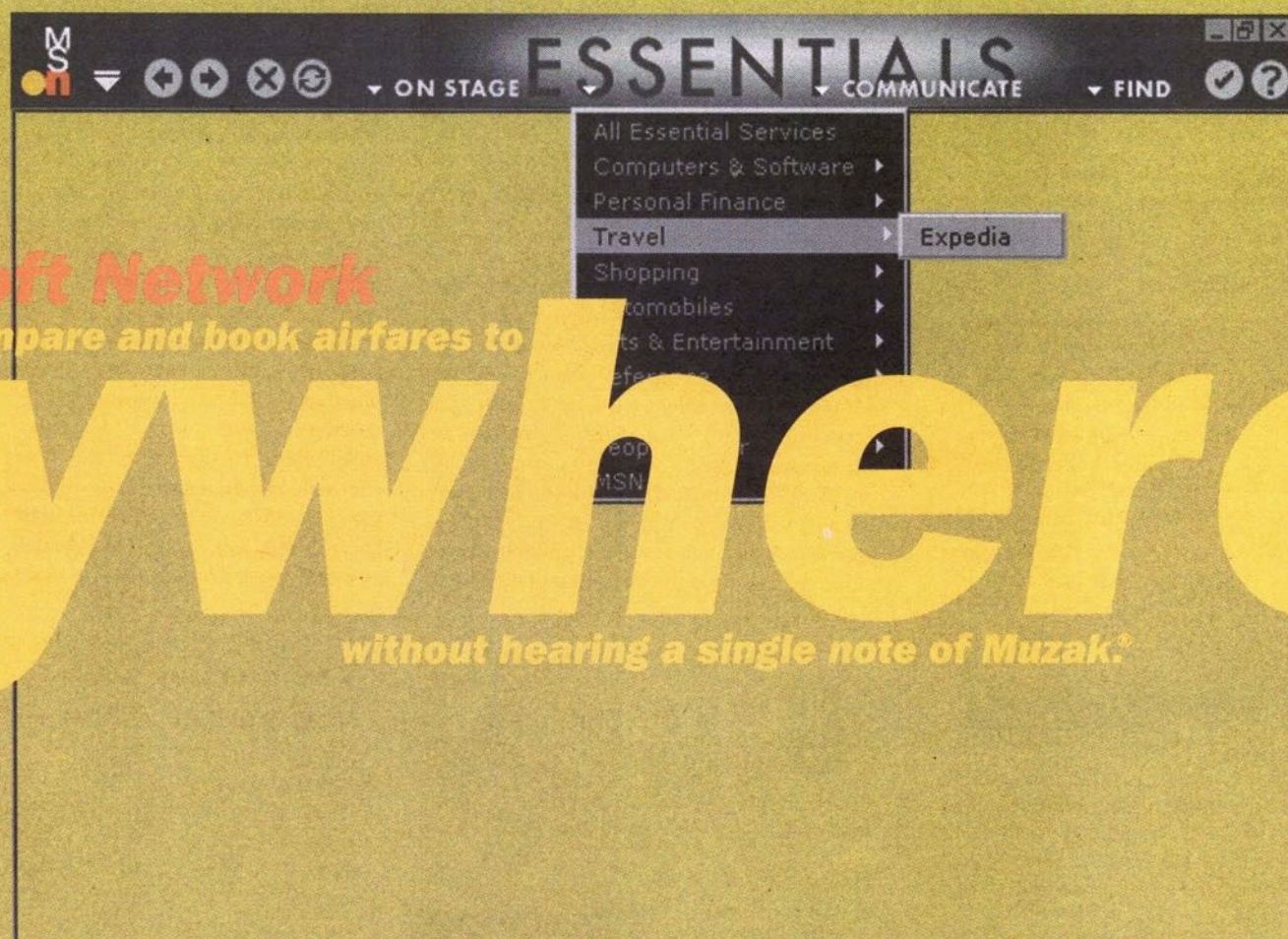
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ABOUT THE COVER

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 can see the future.

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l e t t e r f r o m t h e e d i t o r

"W

hen Bill Gates asks: 'Where do
 you want to go?', I say: 'Where
 am I?'

With these words, Thomas
 Koulopoulos, the president of
 Delphi Consulting Group and
 moderator of the Crystal Ball
 panel at Fall Comdex, Las Vegas, flashed a
 familiar image of a desktop cluttered with
 spreadsheets, word files, and a browser onto
 the screen. The audience burst into laughter
 and relaxed. It was nice to know you weren't
 alone in thinking that technology isn't as
 straightforward as the gurus proclaim.

Although the room was packed with hun-
 dreds of info-hounds eager for a preview of
 the future, when Koulopoulos asked for a
 show of hands, only 24 individuals admitted
 to being "geeks." This may or may not be
 odd, considering Fall Comdex is the largest
 computer trade show on the continent, and
 that at the close of 1996 pretty well every-
 one has in some way been drawn into the
 frenzied world of technology.

So when the panel of futurists kicked off
 with a discussion on the importance of "ease
 of use," the topic hit home.

Map wanted

When we look at today's technology—the
 cluttered desktops, the turtlish Internet
 connections, the complicated browser con-
 figurations, the computer crashes—are we
 able to consider where we want to go?

According to Paul Saffo, director of
 California's Institute for the Future, we are
 obsessed with today's tools precisely
 because they do not fit into our lives. Trans-
 lated, this means we're thrilled by faster
 modems, bigger monitors, and fancier suites,

not necessarily because they're great, but
 because we're not content with what we
 have.

For example, my next-door neighbor
 would prefer a GUI that looks more like a
 Rolodex, with simpler flip-through
 options. My sister would like to skip
 browser configuration, so she wouldn't
 have to call on our resident techie just to surf.

For my part, I would have liked my note-
 book computer to know I had arrived in
 Vegas. This way, the tedious attempts to log
 onto the Toronto network—while avoiding
 the long-distance charges—could have been
 precluded.

When the Crystal Ball panelists got around
 to their predictions, where we would be
 became no less important than how we
 would get there. Because if the arrival is suc-
 cessful, the tool will become invisible, they
 say.

Foolproof?

It used to be so simple. You'd spill coffee
 on your floppy disk and ruin the file. You'd
 forget to backup the internal hard drive and
 lose all your work.

Now we have hardware, software, and
 Internet problems that eclipse the already
 serious difficulties with ABMs, computer
 viruses, and information overload. If things
 keep changing at this pace, one wonders
 whether we'll make it through the 1095 days
 to the year 2000.

According to many futurists, however, by
 the millennium, many of the new technolo-
 gies should have become transparent. Like
 the phone, car, and light switch today,
instructions will no longer be necessary!

In fact, even *Byte* magazine's peek into the
 future revolves around the term "ubiquitous,"
 as a result of ease-of-use.

Marc Andreessen, vice president of technolo-
 gy for Netscape Communications, predicts
 that, in five years time, "the Internet will
 have begun to disappear, like electricity and
 telephony, into the woodwork. And it will
 [be accessible] everywhere, in wired or
 wireless form."

Regarding the next wave of computing,
 Jerry Rogers, president and CEO of Cyrix
 Corp., says "the human interface will final-
 ly fulfill the ease-of-use model for everyone
 to feel comfortable. The interface will con-
 sist of sophisticated speech recognition and
 synthesis and virtual reality."

The dim past

If these experts are even partly right, then
 if we just wait, the wagons will eventually
 become cars, the horses will be let out to
 graze, and we'll forget why we ever adopted
 the term "horsepower." More concretely—
 we'll forget why we called what we see on
 the monitor a "desktop," why a Web site was
 called a "page," and what logging off was all
 about.

At that point, my neighbour will have no
 recollection of "Rolodex," using a computer
 will be as simple as driving a car, and my GPS-
 equipped laptop will let me know where I
 am.

Until then, we can only dream about the
 future and keep "wow-ing" the improve-
 ments as they come.

Happy New Year!
 Mara Gulens
editor@tcpon.com

Your
letters
please

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The facts as we understand them..

One of our staff has drawn our atten-
 tion to an article in the October 1996
 issue of *Toronto Computes!* by
 Christopher Guly about a software pro-
 gram that we developed for the FBI. We
 are very pleased to get free publicity, but
 would like to point out a few inaccura-
 cies in his article.

CIVER-PSYCH is a clinical decision-sup-
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The product that we developed for the
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Jean Kelly, President

The Code

I am writing to you about statements
 made in the article on page 16 of the
 December issue of *Toronto Computes!*. It
 stated that supporters of the Canadian
 Association of Internet providers volun-
 tary code of conduct are "hoping it will
 pave the way for regulation of the
 Internet."

In fact, its purpose is to eliminate the
 need for mandatory government imposed
 regulation. The code defines an initial set
 of voluntary industry guidelines regarding
 a number of legal issues.

While we agree with Mr. Carroll that
 information flows freely in the world of
 the Internet, a very small percentage of
 that "information" may violate copyright
 laws, the criminal code and other laws of
 the country. The code addresses those sit-
 uations.

Letters...

continued from page 6

Unfortunately, the article did not actually list the code, so that *TC!* readers could not examine it for themselves. The full code is at CAIP's web site (<http://www.caip.ca>).

Ron Kawchuk

Electronic Banking

I've been reading free local computer magazines for quite some time now, and (IMHO) I think they provide invaluable information about the computer industry for lower mainland residents. However, I've been waiting for an issue that will cover home banking. I know that there has recently been a great deal of ads in the newspapers about home banking offered by many banks. Personally, I would like to see an issue which will cover all the banks that offer this service. How it is offered (i.e. over internet or a dial up line), what options are available (i.e. stock and mutual fund monitoring) and how much it will cost? Preferably, aspects of security will be mentioned.

Do you think home banking will ever be discussed?

Terry Hui

Lima Disgraced!

I have been self-employed as a Macintosh computer consultant for several years, with operations based in Mississauga.

As a Certified Macintosh Evangelist :-), I feel compelled to correct myths and misconceptions in the media regarding the Macintosh platform. When I noticed a "Macintosh Misconception" in Paul Lima's November 96 article *Demand for used computers grow-*

ing for individuals, schools, I wrote a short note to him.

I demand a "public dressing down" of Paul Lima, one of your better contributors! (Please take this demand in a humorous vein). This request is at the insistence of Paul himself.

I have successfully installed the latest Mac operating system (7.5.5) on Macs that are 5 years old. Any Mac that contains at least a

68030 Motorola CPU is capable of running 90 per cent of the "features" contained in the latest OS, and that includes PowerBooks as well. Call me biased, but the Mac interface is (still) far more (Bill Gates be damned) user-friendly than any other operating system available on the market.

I feel much better now. Thanks for a great paper.

Steve Patterson, via the Internet

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Coming up next issue

GAMES ISSUE!

How we left board games behind and why some of us will never go back

- update on the gaming scene
- gaming hints and tips
- gaming hardware review

Oops

In *TC!*'s November issue the review of *First Aid 95 Deluxe*, was published at a retail price of \$49.95, however that is a US price. *First Aid 95 Deluxe* by Cybermedia is approximately Cnd\$75.

Also in the November issue, the first item in the Briefs section mentions *Backer* from Quantum Press Inc. The e-mail address listed is no longer available and any interested readers should contact Scott Norwood (416)225-5255.



The BC Files

Steve Bain

Vancouver firm previews TV-based Web

A three-year-old Vancouver software company calling itself FamilyWare Products Inc. is betting the farm on future demand for consumers to view the World Wide Web on their

living room television. Also, in a vote of confidence in the popularity of Microsoft's World Wide Web browsing software, their products incorporate many features and effects compatible only with the latest version of Internet Explorer (version 3.0).

Last month, FamilyWare launched a preview of their products from their Web site, Family Central (<http://www.familycentral.com/>), which will be available for free viewing until the end of February. Following this trial period, users will pay a flat annual fee for full access to Family Central's features.

The company is touting their Web products as being very intuitive, with superior archiving capabilities. "We're hearing more and more people complain about how difficult it is to find and archive information on the Internet," says Michael Brown, President of FamilyWare. "Family Central provides a front end to the Internet that's both exciting and easy to use."

Based mostly on interactive images, the Family Central features literal and clickable graphical illustrations when users enter the site, which includes entertaining and informational topics such as "My House" and "Vancouver at a Glance" for access to areas deeper within the site. Using MS Explorer's proprietary zooming features, users can zoom in and out of scenes and negotiate virtual rooms where they can click on particular links for more information or obtain information on products featured. From there, visitors to the site can build their own libraries of links to their favourite areas.

FamilyWare's rationale for development of this new type of Web site product is in making the Internet accessible to people who can't afford their own computer, and to make Internet access as easy as using your TV's remote control.

For more information on FamilyWare, see their Web site at URL <http://www.familyware.com>.

VFS's million-dollar "Media Cafe"

The Vancouver Film School last month launched their \$1-million Web cafe as a "celebration of media and technology," according to David Baker, head of the school's multimedia campus. The cafe, situated on-campus at 390 West Hastings, consists of 14 stations hooked into the World Wide Web and boasts

operating at speeds up to 340 times faster than run-of-the-mill 28.8 modems.

Referred to as the "data bar," it overlooks a 150-seat, licensed restaurant, bringing new meaning to "out for a byte." The cafe also features a state-of-the-art multimedia sound system and video studio.

Hourly rates for using the new facility are set at six dollars for school members and ten dollars for non-members. Patrons can surf the Net, create digital documents, send e-mail, chat online, or just play a video game.

The film school's operators also hope their new high-tech venue will be used for such events as movie shoots, rock-video production, and fashion shows. Last month's scheduled events included live broadcasts to MuchMusic and the Internet, as well as live jazz and flamenco performers.

Sponsors for the cafe include Silicon Graphics, NetPower, and Electronic Arts Canada. Web visitors can obtain more information about the Vancouver Film School at <http://www.multimedia.edu/> or their Web Cafe at <http://www.thewebcafe.com/> or by e-mailing info@thewebcafe.com

Advantage offers free seminars

Advantage Computers Ltd. has begun offering a series of free day-long seminars—including a free lunch. Last month's seminar, presented by the company's own networking guru, covered topics such as local- and wide-area networks, remote access, Internet security, and glimpses into emerging network technologies.

Although the company's main goal is to stimulate sales of its Macintosh line of computers, the session offered some valuable information for network enthusiasts and insights into some of the latest technology innovations. Advantage also expects to have relocated to their new downtown offices this month, making the seminars more convenient for corporate customers.

For information and online registration for upcoming seminars, check out their Web site at <http://www.advantage.com/seminars/> or send e-mail to seminars@advantage.com

Steve Bain is a writer in Vancouver, Canada. He can be reached on CompuServe at 72623,1233 or on the Internet at Steve@helix.net ♦

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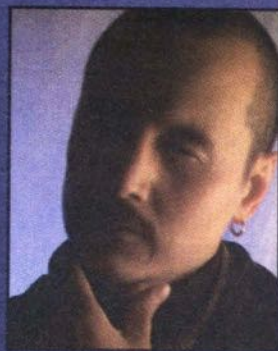
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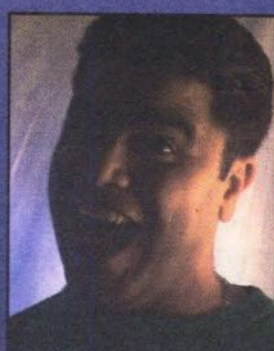
These testimonials are from some people who have played Soultrap...



"It's amazingly addictive. Once you start playing you won't be able to stop."



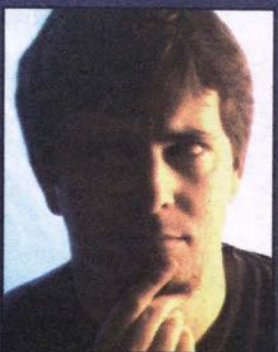
"It's like playing Quake and Super Mario combined in one game, only better!"



"The fact that I could change camera angles as I played was really cool. There's even a smart camera that picks the best view for you!"



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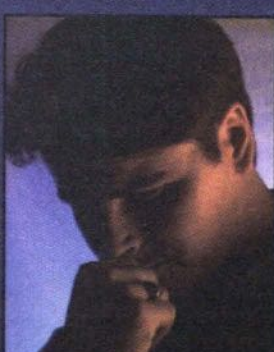
"You look up, down... 360 degrees around you. I've never seen anything like it!"



"Stunning 3D graphics, an amazing soundtrack and unmatched playability... I really didn't think you could get this kind of experience on a PC!"

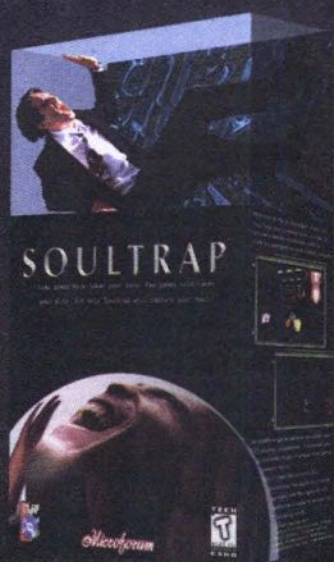


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Five trends for software development

• • By JACQUES SURVEYER • •

The Software Developers Conference '96 East provides a window on the latest trends in development software.

Most sessions here are one-, two-, and

three-day tutorials with hefty US\$300-\$1,000 price tags, where attendees hear some of the best minds in the industry, such as Larry Constantine, Bruce Eckel, Larry O'Brien, and Roland Racko, among others. Five major trends were discernible at this year's show—

held in Washington, DC, from October 28 to November 1—and they reveal the heart of development as it stands today.

First, I-Nets (Internet, with its worldwide connections, and intranets within companies) are becoming the preferred method for distributed

information access. More than one seminar cited low start-up costs, ease of use, and open, cross-platform availability of key tools.

Second, those I-Net sites are rapidly changing from passive info kiosks into active transaction malls with the help of database, security, and Web-site tools from Borland (Intrabuilder), Bluestone (Sapphire), IBI-5thLevel (Quest), Haht (HahtSite), and Speedware (AutoBahn), as well as from heavyweights like Microsoft, Netscape, and OpenMarket.

I-Nets (Internet, with its worldwide connections, and intranets within companies) are becoming the preferred method for distributed information access.

Third, the language of the Internet is Java. The language of open, cross-platform computing is no longer C or C++; it is Java.

The flood of tools for Java was notable. In Java compilers and IDEs (Integrated Development Environments) alone, there were some very impressive new products. Asymetrix' SuperCode (due in January) currently holds the code-speed crown, but Microsoft's J++, with its learning-friendly developer's interface, and Symantec's powerful Visual Cafe (both available now) will give SuperCode a run for the money.

I-Net sites are rapidly changing from passive info kiosks into active transaction malls with the help of database, security, and Web-site tools

Borland's JOpenBuilder (AKA Latte, available in early 1997) and Sun's JavaWorkshop are both written in Java and are therefore portable across OS platforms. Both pack unique features and RAD development styles and, along with Corel's *Java Office*, stand as proof that Java can be used for industrial-strength projects.

Gone missing

Fourth, tools for PC and relational databases, mainframe-performance tuning, and project management were nowhere to be found. This was surprising in the latter case, given the constantly repeated message that the best development practices start with good project-management tools.

Nonetheless, a sure-to-be-classic book on software project management was unveiled at the show—Steve McConnell's *Rapid Development*. In the same thorough yet revealing manner as his *Code Complete*, McConnell shows what really works in software projects—a must-read for MIS executives and project managers.

Finally, this show covered its own potential demise—the Internet access, free downloads, media authoring, and CD-ROM-based learning tools available will obviously sap away customers, until shows like this readjust their price-to-learning-experience ratios. ♦



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Here comes 2000

About a year and a half ago, a mailing went out in New Mexico for the guardian of an individual to bring him in for registration in kindergarten. The individual in question had no parent or guardian, since he was 105 years old. This is a very small instance of the biggest, messiest, and most intractable problem of the next few years: the coming of the year 2000.

• • By ROBERT SLADE • •

The trouble, known in geek shorthand as Y2K, is that a great many programs have been written that only consider the last two digits of the year part of the date—for example, “97” in the case of 1997. When the century (and the millennium) rolls over to 2000, the current date will suddenly become less than previous dates. Any program that calculates interest, due dates, or anything else based on elapsed time can fail.

To make the situation worse, many of the programs hardest hit by the Y2K problem are older, legacy systems. Banking systems, to give only one example, are composed of literally hundreds, if not thousands, of interrelated modules. It is not enough to simply make a change in the date format. Each module must be examined to see how it uses every other module that might use a date, and also to see how it looks at every data record that might contain a date.

It's a dull job, but...

Y2K is not an “interesting” problem in computer terms, since it simply involves computer maintenance-programming “bull work.” All programs have to be checked to see whether they (internally) use two-digit year dates, and then the whole program (system, if programs are linked together) has to be checked for every spot that uses the date fields—grunt work, plain and simple.

An Arthur C. Clarke/Gentry Lee collaboration about raising the Titanic has one of the characters get rich off a “virus” that magically runs through programs to fix the Y2K problem. This is pure fiction: it would be impossible to predict the outcome of such a program, but it would, in all likelihood, make the problem far worse.

Y2K is also not a new problem. Programmers have known about it for years. In fact, there is a miniature example of Y2K every four years: Leap Year. Every February 29, you find an instance of some technology that has failed to deal with it. Last year, for example, the Arizona State Lottery installed new terminals for all its locations. On February 29, it was found that none of the terminals would recognize or accept the

continued on page 20

Here comes 2001



A lot of people likely breathed a sigh of relief when 1984 came and went, and George Orwell's predictions of societal control had not arrived. On the other hand, maybe Big Brother wasn't as formidable a presence as his little computer brother—and now HAL and his kind seem poised to become a real presence in our world, come 2001.

• • By CHRISTOPHER GULY • •

Friend or foe? A lot of people wonder as they watch, and participate, in the techno-evolutionary odyssey leading up to the next millennium.

Until just recently, Ottawa computer-bookstore owner Tom Sieciechowicz felt that his retail business was quickly becoming an oxymoron. Last fall, he had little choice but to catch up with customer demand and created a Web site (<http://www.computerbook.com/>) to sell his products online.

“I think it's only a matter of time before consumers will be able to enter virtual retail space and walk down a corridor, open a book, and decide whether to buy it or not,” says Sieciechowicz. “When I will be able to buy a suit and get it tailored to my measurements through a computer, I think the days of the shopping mall are almost over.”

In a speech to US retail executives in early 1995, Wendy Leibmann, president of WSL Marketing Inc., predicted that turn-of-the-century shopping will look something like this: “Open the screen, highlight the store name, enter your store debit-card number, and begin. Pick your category, scroll down the menu, pick your brand, check the price, select the quantity, aisle by aisle,

category by category, until you finish your shopping list and enter how and when you want the merchandise delivered. Think it won't happen? Think again. Consumers have no time.”

Cassandra complex cashes in

Vancouver-based futurist Frank Ogden (at Web site <http://www.dr tomorrow.com/>) was preaching that kind of message a couple of decades ago to some audiences who viewed him more as a screwball George Jetson wanna-be than a realist. Now, the 76 year-old is respected as a visionary. Corporations line up and pay Ogden big bucks—enough to earn him almost US\$500,000 annually—to hear “Dr. Tomorrow's” apocalyptic message of 21st-century living.

“Virtual reality is going to change our education system,” says Ogden matter-of-factly. “You're going to have brain surgeons who will have been able to practice on a virtual subject 100 times more than they would have been able to as interns working on a few patients or cadavers.

“Now, it's not unusual to take a flight where the co-pilot may have only

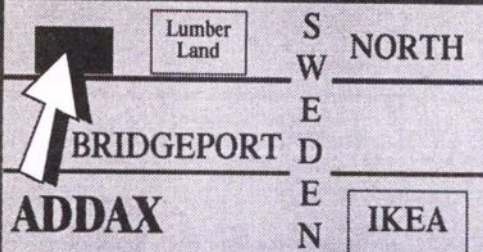
trained in a simulator and never actually flown a plane before. But that person will be better trained, because they will have been exposed to a lot of more than someone who trained in the air—how to handle engine problems, a seagull crashing into the windshield, an undercarriage that won't go down, and a washroom catching on fire, all at the same time.”

Colin Ware, a professor of computer science at the University of New Brunswick in Fredericton, is developing user interfaces for interactive 3-D graphics. One of his projects involves a “bat,” the likely successor to the mouse, that encodes hand position and moves objects around in 3-D graphics workspaces. Ware believes 3-D computer images will be as commonplace as colour is on desktop computers.

Virtual room, virtual view?

“In the next three years, you're going to see people adopting a virtual workplace,” he says. “Instead of having desktop documents and folders, you will have a set of rooms to navigate through.” x Will the trappings that come with virtual technology be too cumbersome for consumers? “A lot of people, especially in an

continued on page 15



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Flatbed Scanners

A N I N - D E P T H A N A L Y S I S

Associate editor Myles White has put four flatbed scanners through their paces, to determine which is the best. Interested consumers, take note.

• • By MYLES WHITE • •

The ground rules for the testing were as follows:

In order to keep as flat a playing field as possible when testing our candidate scanners, we decided to use the same computer—a 486 DX4/100 with 16 MB of RAM, running Windows for Workgroups 3.11, and equipped with a 16-bit, standard ISA bus, Future Domain SCSI adapter—for all tests, on the theory that this still represents the largest number of computer/operating system combos in use.

Images from a 3 by 5-inch black-and-white photograph (8-bit, 256 levels of grey), a 6 by 8-inch line drawing (2-bit black and white) and a 6 by 8-inch, three-dimensional object (in this case, an Artisoft network card, 24-bit full colour) were scanned into both *Corel PhotoPaint 5.0*



The Agfa StudioStar LE.

and *Micrografx PhotoMagic*. Each object was scanned three times at 75, 175, and 300 dots-per-inch (or in the case of the Agfa Studio Star, the nearest line-per-inch equivalent) and the average time for each scan was used to create the accompanying chart.

During the testing, we discovered a couple of important points to note. While a good TWAIN driver won't necessarily improve a slow scanner, an unsuitable driver can slow down a good unit. We used the older, 16-bit version (2.1) of the DeskScan II driver left over from another test in the first round of HP 4C tests. The test times were so remarkably faster than the competition that we decided to re-test it, just to make sure our eyes hadn't played games.

In the second round, we installed version 2.3 of the DeskScan II driver, which shipped with the 4C, and immediately ran into trouble. Not only were the scans taking two to three times longer, but some at higher resolutions were crashing our test system. When we reloaded version 2.2 drivers supplied by the company, the problems went away, although the scan times were

still slightly higher than the original tests.

According to HP, DeskScan II 2.3 is a 32-bit application optimized for Windows 95 and is less suitable for use under Windows 3.x. Why isn't a 16-bit version also included? Damned if we know.

Your computer's speed and its components can also drastically affect scanning performance. While we didn't completely re-test all of the units under other conditions, we did try out the Agfa StudioStar on a 200 MHz Pentium-based system with 32 MB of RAM and an Adaptec 2940 Ultra Wide SCSI adapter. A scan that had taken 295 seconds (nearly five minutes) on the 486 DX4 took only 45 seconds on the faster system.

Our scanners were tested on a PC, but all are available with options for the Mac environment. Here's are brief précis of the features in our tested scanners:



The Mikrotech E6

highlights) comes in two models. The \$1,195 StudioStar LE comes with Adobe Photoshop LE (limited edition) while the full version of the Adobe product ships with the more expensive (\$1,395) StudioStar Full.

Both models ship with Agfa products including FotoSnap (a simple TWAIN driver), FotoLook (the advanced TWAIN driver), FotoTune (a calibration utility to match screen and scanner colour values), FotoFlavor (a filter utility), SOFT copy (a direct-to-printer "copier" application), and Caere OmniPage Limited Edition OCR (optical character recognition software).

The StudioStar was the runner up in our scanner challenge, both because of its speed (slower than the HP 4C) and its FotoLook TWAIN driver. Although FotoLook gives

the user extensive options for pre-correcting an image, it was still no match for the HP DeskScan II driver's ability to automatically select the correct image type and exposure.

One interesting note: Agfa quotes *only* "estimated street" prices, but where we checked, the prices were higher—\$1,295 and \$1,425 respectively.

More info: 1-800-268-1331 or <http://www.agfahome.com/>

Hewlett Packard ScanJet 4C

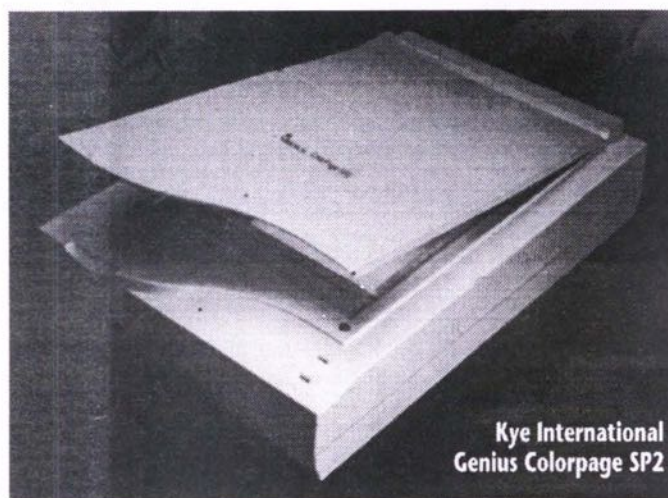
And the winner is...the 30-bit ScanJet 4C from Hewlett Packard. Once we reverted to an older (16-bit, pre-version 2.3) DeskScan II driver set, the 4C produced both impressive test times and, more importantly, nearly perfect

images without the need for a lot of pre-scan tinkering with image quality correction. Like the StudioStar, the HP uses 24-bits for colour (16.7 million) and the additional 6 for shadow/highlight resolution. It also employs 10 bits for scanning greyscale images instead of the standard 8, which gives, in effect, 1024 shades of grey, although only 256 shades make it to screen (the additional two bits are used to refine shadow/highlight).

Aside from its speedy hardware, however, the automatic preview, image type, exposure, and image-size detection saved even more time.

The 4C comes bundled with Corel's *PhotoPaint 5 plus*, Visioneer's PaperPort for document image filing, Caere OmniPage LE OCR software, and a direct-to-printer "copi-

continued on page 16



Kye International
Genius Colorpage SP2

SELECTION CRITERIA

If you look through the US glossy magazines for flatbed scanners, there appears to be more of them than we've featured here—and there are. Our criteria narrowed the field. We asked nearly 20 vendors to send us a unit that was flatbed, produced colour, had a list price under Can\$2,000 (and would be available in Canada by this month), could run on at least a PC, was TWAIN compatible, and had drivers currently available for both Windows 3.1 and Windows 95. By the time the dust settled, only six models remained standing.

Two of them didn't make it here in time for our test challenge, even though the manufacturers, Nikon USA (ScanTouch 110) and Epson Canada (Expression 636), had been sending us press releases about them for over two months prior to our request (which was sent nearly a month before we were scheduled to begin testing).

Here comes 2001...

continued from page 12

office environment, are going to have difficulty with virtual-reality helmets, goggles, and glove. But I think they won't be necessary as the technology evolves," says Ware.

Ogden agrees. "There are headbands you can wear that transmit your alpha-beta waves into a computer an, through a type of biofeedback and relaxation, you can only think a computer to do something," he says. "But that can be slow and it's not likely to catch on."

Faster, simpler, and easier technology in an integrated system is what the market and the consumer are going to pursue, says University of Ottawa electrical engineering professor Nicolas Georganas. "Videotron in Quebec is already talking about introducing a box that their customers would place on their television sets, and which would give them phone service, cable-TV, and Internet access for tele-shopping," says Georganas, who heads the U of O's multimedia communications research lab.

"At first, it could be costly. They did that in France, where people can make train, hotel,

and theatre reservations online, but the consumer had to pay for each service separately and the company took ten years to pay off its investment."

That old human touch

Of course, academics like Georganas also see the Internet cutting into their classroom territory. So far, he isn't worried. "There will be more courses available, but the human contact will still be there, where a student and an instructor will be able to engage in two-way conferencing."

British science historian James Burke is

currently looking at the viability of an application using CD-ROM technology and modems called "hypermedia webs." Through them, students would be encouraged to make their own "personal and idiosyncratic connections between data." As a result, knowledge acquisition would be driven by the user's interpretation of information.

"If we don't teach our kids to think like that," Burke told *Maclean's* in 1995, "it would be like nobody having bothered to teach a kid to read once Gutenberg printed books." ♦

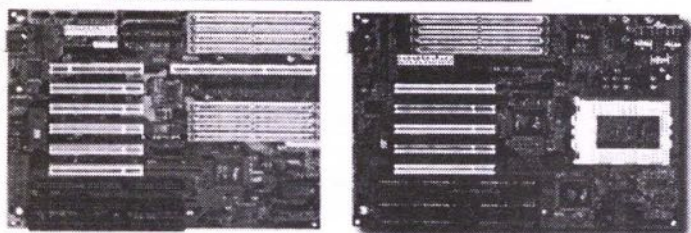
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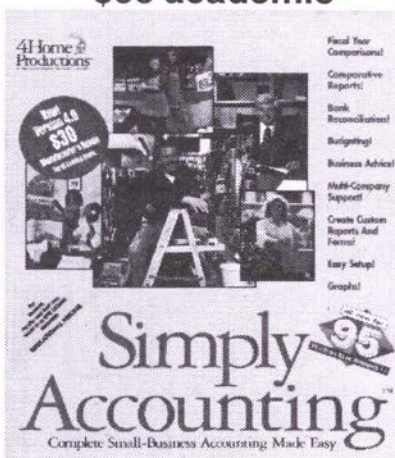
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- Amplified speaker set

Flatbed scanners...

continued from page 14

er" application. True resolution goes up to 600 by 600 dots per inch, software interpolation up to 2400 dpi. The 4C can be found on the street for between \$1,168 and \$1,298.

There is also a little brother, the ScanJet 4P, limited to 24-bit colour scanning, 8-bit greyscale, a maximum optical resolution of 300 by 300, and without *PhotoPaint* in the bundle. It's priced between \$679 and \$759. Automatic document feeders and transparency adapters are available.

More info: 1-800-387-3867 or <http://www.hp.com/>

Kye International Genius ColorPage SP2

Although the least expensive of the models we tested, the 24-bit ColorPage SP2 still turned in respectable scanning time performance (it was next fastest compared to the HP 4C).

The PC version of the SP2 comes with ImagePals GO! Image editing software (requires Windows 95), PhotoImpact SE editing software (Win 3.x), a generic OCR application, and ScanWizard TWAIN driver (the same package that ships with the Microtek E6 below).

With a 24-bit scanning engine offering a maximum of 300 by 600 dpi (4800 by 4800 through software interpolation), the SP2 had trouble rendering colours accurately without a lot of pre-scan correcting and did the least satisfactory scans of our three-dimensional test object. The length of its scans is also limited to 13.5 inches instead of a full 14.

Nevertheless, it's worth consideration when cost is a major factor and you need the flexibility of a flatbed scanner. Available options include a transparency adapter and automatic document feeder for batch OCR processing. List price: US\$299, with the

Canadian street price around \$549.

More info: 1-800-456-7593 or <http://www.genius-kye.com/>

Microtek Labs Microtek E6

The 30-bit Microtek Labs E6 (10-bit greyscale) was neither fish nor foul. It's more expensive than the Genius SP2, but ships with identical TWAIN software and was, on average, the slowest of the four systems we tested. Despite its more robust resolution (600 by 1200 optical, 4800 dpi interpolated) and higher bit-rate, the quality of the images was only slightly better than that of the Genius and was in no way comparable to the HP 4C or Agfa StudioStar.

Our particular E6 came bundled with *Adobe PhotoShop* (full version—although the serial number was nowhere to be found and it wouldn't install), *ImagePals GO! 2*, and *Caere OminPage LE OCR* software. Its list price is \$1,179 (about \$1,100 on the street).

A "Standard" version, with *PhotoImpact* software instead of *PhotoShop*, is listed at \$889 (nearer \$795 to \$829 on the street).

At 8.5 by 13 inches, its available scanning area was the smallest of the four models tested. An automatic document feeder (\$579) and transparency adapter (\$449) are also available.

More info: 1-800-654-4160 or <http://www.mtclab.com>.

The inevitable snags

When conducting our scanner tests, several items, both good and bad, were worth special mention.

Although there isn't any corporate connection between Kye International (Genius ColorPage SP2), and Microtek Labs (E6), they both shop at the same software source (the name of which, we weren't told). The ScanWizard TWAIN driver for both units was identical—same look and feel, same icons, same features, and the same problem. Both crashed regardless of the base application into which the image was to be scanned if the "live preview" option (changes the preview image as various corrections are made to it) was left turned on and we attempted to switch between greyscale and 24-bit colour modes—producing an "out of memory" message and a General Protection Fault.

As mentioned above, Hewlett Packard's DeskScan II 2.3 driver is a 32-bit application optimized for Windows 95 and is awful when used in Windows 3.1 (we suggest you keep your operating environment in mind and beg HP for an earlier, 16-bit version of the driver if planning to use it under Windows 3.1). Using the proper driver, it was overall the best of the breed.

Its automatic preview feature took time to resolve with each scan, but its time-saving automatic exposure detection, image-type detection, and image-size detection were excellent and so were the results.

Our line-art example gave all of the units the hardest time. Although we scanned it as black and white line art, it actually had a spot-colour area as well as thin black lines. All of the units except the HP produced drop-outs in 4 point lines at 75 dpi. Only the HP could "drop back" to less than 24-bit colour to easily pick up the coloured portion of the drawing. When scanned in full

24-bit colour (the only colour option the others offered), only the HP picked up the coloured area without producing colour where there was none. The other three units gave the thin black lines a variety of rainbow hues.

Only the HP didn't offer descreening or some other form of noise reduction. Descreening allows you to take high-resolution scans of material from a variety of paper stocks without picking up the weave of the paper along with the image. Agfa handles it by allowing you to adjust the "line per inch" settings until the unwanted information goes away, while the ScanWizard driver with both Microtek E6 and Genius ColorPage SP2 have pre-set values (e.g., newspaper, magazine, art magazine).

We scanned a 3-D object because many people, such as coin collectors and others (as well as writers who scan software boxes), do. That's why it's important whether the scanner's cover can be removed. Only the Genius ColorPage SP2 has a cover that's permanently mounted. Although it does have a bend in the middle, it's still not as convenient as being able to do away with the cover altogether.

Aside from image editing and OCR software, Microtek included one other noteworthy application. Quick Panel is a set of four buttons that will direct a scan, without starting a full-screen version of the supporting application, directly to your printer, or to a file supported by your printer, fax machine, or drawing application. It's a neat twist on the TWAIN concept of being able to scan directly into an application without starting a second program to process the image. In this case, you can process the image without starting the program. Neat trick.

In the end

We subjected the four flatbed, single pass, SCSI-based scanners to a grueling series of scanning tests and, although the Agfa StudioStar, Microtek E6 and Genius ColorPage SP2 all merit consideration, the HP 4C picked up all the marbles.

Producing a good scanner is a balancing act. It requires not only good hardware, but also the right marriage of hardware with software drivers, and the Hewlett Packard aced the competition on both grounds.

To begin with, the HP 4C is *fast*, often two to three times faster than the competitors in our tests over all image types and a range of resolutions. It's also *smart*. While the Agfa StudioStar did better than either the Microtek or Genius when it came to reproducing original colours without a lot of fine tuning in the TWAIN driver, the HP managed this feat consistently, based on its own internal sensing and automatic exposure adjustment.

Rarely did it miss correctly detecting the type of image to be scanned (from a long list, including black-and-white line drawing, black-and-white photo, colour drawing, 16 million colour drawing, colour photo, and variations on each). Previewing was refreshed automatically each time a scan was requested (the others required it to be triggered manually each time and couldn't detect what type of image was to be scanned). ♦



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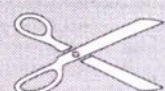
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Combatting crime with computers

• • By ANNA DWYER • •

Crime investigators in Canada have seen the future and it's all high-tech. Police departments, insurance companies, and forensic accountants are turning to computer analysts to crack sophisticated fraud rings and trace elusive offenders.

Insurance fraud in Canada cost the industry \$1.3 billion last year, according to the Canadian Coalition Against Insurance Fraud, and white-collar crime is estimated at nearly \$20 billion each year. Most of the money is never recovered and few suspects are investigated—due partially to policing cutbacks and partially to the technical complexity of corporate crime.

Most people will shrug this off, because they see fraud as a victimless crime, says Jim Adams, special investigator for the Insurance Crime Prevention Bureau (ICPB). If recent trends are any indication, however, fraud committed by organized-crime rings is becoming quite violent, with links to other criminal activities, including sophisticated credit-cards scams and gun-smuggling operations, he adds.

"What the industry is missing here is that everyone has their little SIU (special inves-

tigative unit) that's chasing little independent files," says ICPB investigator Rick Muir, who worked with Adams to crack the largest fraud ring in Canada.

"The point here is that we're not talking about someone increasing the size of a TV from 16-inch to a 24-inch on a claim. We're saying this has far more reaching implications than insurance companies and we've been saying this from day one."

Last year, Adams and Muir exposed Project Langchow, a metro-based fraud ring that scammed at least 29 Ontario insurance companies out of an estimated \$12 million. The investigation also uncovered fraud links between policy holders and government agencies, such as Social Services and Workers' Compensation.

"It's all part of the mindset that the system is geared to deal with individual claimants, one guy at a time," Muir suggests. "No one has been able to connect multiple claims together within the industry as a whole."

Until now, The ICPB has set up an elaborate database system that allows investigators to connect multiple claims to a common element—such as a mailing address or a telephone number—and add photo IDs to claims files.

Countering violence

Police departments have set up similar central database systems, which they hope will eventually contain DNA fingerprints of convicted sex offenders. This latter system, devel-

oped in 1992 by the RCMP, will become mandatory in Ontario this fall as a result of a provincial review of the Paul Bernardo investigation. This national database, the Violent Crime Linkage Analysis System (ViCLAS), tracks violent crimes across the country, using database systems to establish connections to various police jurisdictions.

Such a system would have led detectives to the many police departments that had previously investigated Bernardo, now serving a life sentence for the murders of Kristen French and Leslie Mahaffy, says Detective-Inspector Kate Lines, head of the OPP's Behavioural Sciences Unit in Orillia. A recent BC rape investigation was solved in one hour using this system, although the rapist eluded police for months.

The insurance industry also lacked this technology, however, when the ICPB received its first Langchow related complaint two years ago. The ICPB investigators, both former police officers, had only a basic understanding of computer systems at the time. Their "equipment" consisted of a ruler, a pen, and a coffee mug, Muir recalls.

The coffee mug was used to trace circles on white paper, which were connected by pen marks. The diagrams represented each of the suspects, who were using numerous aliases. The primitive diagrams eventually covered four walls and a window.

Getting the right tools

Seven months and a storage room full of data later, the ICPB decided the complex rela-

tionships of this ring could not be unravelled with the human eye alone. The result was an investment of more than \$40,000 in customized computer database systems, scanners, and laptops, as well as combined investigative forces with several provincial police departments.

With the stroke of a keyboard, investigators were able to prove instantaneously that suspected members of the ring were using multiple identities. This was a surprise to the two investigators, who were used to doing detective work the old fashioned way.

"When I was in the police force I could jump on my hot rod after work to force the images of that day's autopsy or arrest out of my mind. But with this I'd wake up in the middle of the night seeing nothing but circles and squares," Muir notes, referring to the numerous computer generated diagrams used in the investigation.

"It was a hell of a story; not something I would have believed ten years ago."

Charges have been brought against professionals in the legal and medical communities, as well as auto body shops, therapists, and dozens of policyholders as a result of the two-year investigation. Those involved with the scam are believed to have used bogus companies and elaborate combinations of their names and addresses in order to file numerous claims for a single accident. Even as they face criminal charges, there are still doubts about the true identities of some of these claimants. ♦



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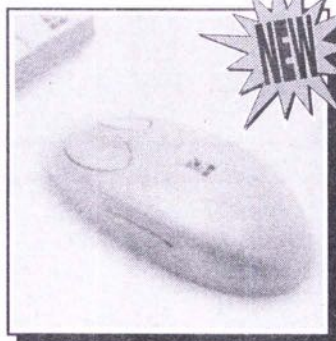
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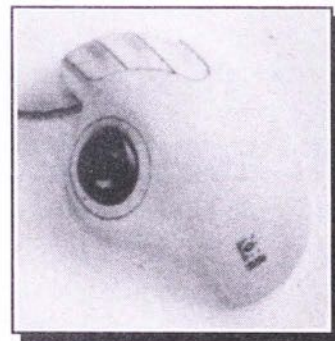
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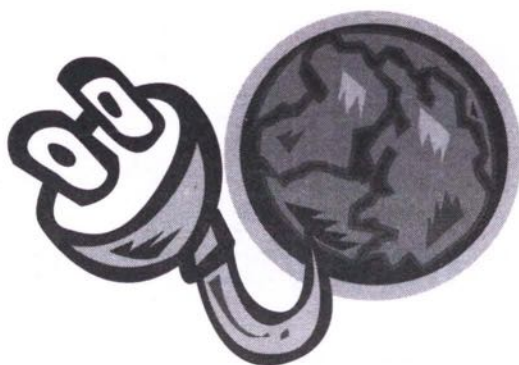
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Here comes 2000...

continued from page 12

date. The entire day's business, estimated at roughly a million dollars, was lost.

Leap year problems aren't rare, either: *Excel* has a variety of known bugs with respect of February 29 (just for your information, every four years is a leap year, except for every hundred years, which is not, except for every four

hundred years, which is. So Y2K will have a leap day, as well).

Seeing spots?

There is a kind of non-issue addendum to Y2K: the sun-spot cycle. Some people might remember from high-school astronomy that sun spots, and solar electrical activity, vary on an 11-year cycle. We are currently on Cycle 23, which will reach its peak in, you guessed it, AD 2000.

Some doom-and-gloom specialists are pointing out that the new electronics technologies that have been developed in recent years will have a baptism by solar flare then. Amateur astronomers regard these warnings with some bemusement: they are looking forward to the observations that can be made.

I would say that the real story of Y2K is question as to why management types have left a known

problem so late that it has become a problem. Those who expect to make it up with a little overtime, take note: there are only 150 week-ends left in this century.

The joke about Bill Gates' reaction to the end of the world might well have a new punch before too long—with some MIS executive stating "and the great news is that we won't have to fix the Year 2000 bugs!"

Spreading the Word virus

Of more immediate concern is that there is news from those fun guys and gals at Microsoft! Office 97 will include VBA (Visual Basic for Applications) 5.0 as the scripting and integration language for Access, Excel, PowerPoint, and Word. Not only that, but Microsoft has followed up on its promise to license VBA to other vendors: upcoming releases of Visio (Visio), Chameleon (NetManage), Photoshop (Adobe), and even AutoCAD (Autodesk) will use VBA 5.0. To date, with the possible (although unlikely) exception of the recent Excel macro virus, successful macro viruses in the wild have been confined to WordBasic, and thus only affected Word. VBA, however, will automatically convert WordBasic macros to VBA macros on the fly, so Word macros viruses will continue to propagate on through Office 97 and other VBA 5 compliant applications. In addition, VBA macros are stored in a different format than WordBasic templates. Existing macro virus scanners, therefore, will not be able to detect macro viruses in the new VBA format once they have been (automatically) converted. Scanner developers are aware of the problem, and working on it, but there will be a period of vulnerability for a time after the release of Office 97.

More fun for years to come

Technical-support departments and MIS managers face some additional problems this year. With the introduction of Windows 95, support for DOS and Windows 3.x began to fade. After some time with the product, though, it is becoming clearer that Windows 95 is not as compatible with its predecessors as was assumed, nor is it quite as easy a path to Windows NT.

This has reopened the question of a base platform and operating system. The PowerPC reference platform (and thus the option for MacOS) has not made the inroads expected. On the other hand, Digital's Alpha is doing better than some thought it would. OS/2 is still struggling, but still an option. On the home front, with a variety of smaller companies willing to support it, Linux is showing surprising strength.

And just when you thought diskette wars were all over (remember the 2.88 megabyte disks?), they have erupted all over again. CD-ROMs achieved market dominance in distribution media just in time to face an onslaught of options challenging the CD-R. Zip, Jazz, new generations of magneto-optical: every new issue of the computer magazines has a new player announcing its entry into the removable-storage market.

The first DVD (digital video disk) drives are starting to appear, despite the fact that a standard has not yet been decided. After all, when you can put five gigabytes on a single disk, why wait, right?

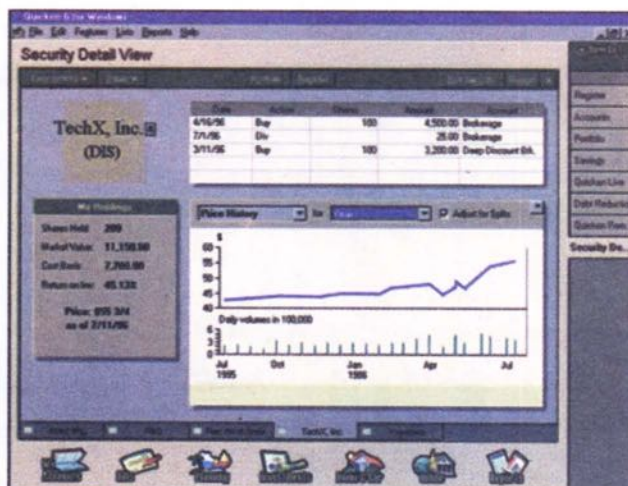
Robert Slade is a data-security consultant, and therefore a confirmed pessimist. He can be reached at roberts@decus.ca ... if nothing crashes. ♦



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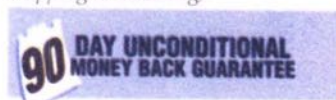
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New media

OVERHAULING THE OLD

• • By CHRISTOPHER GULY • •

For Scott Remborg, convergence means information will be processed faster. "And faster means more efficient in delivering information with better quality," he says.

Going faster doesn't necessarily mean the more traditional forms of media—including publishing, radio and television—are going the way of the dumpster, however.

Radio and TV offer a form of lifestyle structure that the Internet, so far, does not. "People will have their supper and put the dishes in the washer in time to watch the six o'clock news on TV."

"I don't think books are going to go by the wayside. When I sit on the john, I need something to read," jokes Remborg, senior vice president at Medialinx Interactive (a Toronto-based telephone utility/new-media venture), who was in Ottawa recently attending the New Media '96 conference.

On a more serious note, however, he acknowledges that radio and TV offer a form

of lifestyle structure that the Internet, so far, does not. "People will have their supper and put the dishes in the washer in time to watch the six o'clock news on TV," he says.

"In my case, I will force myself to wake up at eight o'clock in the morning to make sure I hear the news on the radio."

Keeping up

Nevertheless, the purveyors of the more traditional forms of media are starting to take more than just a peak at the expanding multimedia universe.



Over at Canada's Discovery Channel, executive producer Paul Lewis will spend \$5 million over the next five years for a Web site, launched on October 31, called The Exploration Network (EXN). The site is located at <http://www.exn.net/>

On a name-recognition level, Discovery added the Web site to its existing one (<http://www.discovery.ca/>) to avoid any further confu-

sion with the specialty channel's US counterpart, found at <http://www.discovery.com/>. More importantly, EXN marries TV to the Net.



Exploration Network

"Let's say we run a documentary about the Galapagos Islands," explains Lewis, who was among the guest speakers at the New Media conference. "As an EXN-enhanced program, the Internet user can learn more about a particular animal featured on the TV program. Or, perhaps, download the complete interview with the scientist at the Galapagos research station when only 30 seconds was used on the documentary."

"EXN may also offer sidebar stories on Charles Darwin, the first scientists to land on the Galapagos, or a detailed account of his mission aboard the ship, the Beagle."

EXN also features an Amazement Park, which lets visitors go on a "cyber-safari" and drop in on the online "technology hall."

Lewis emphasizes, however, that The Discovery Channel Canada will not abandon its TV mandate, let alone produce Net-specific programming. "We have beautiful images and

great story-telling on our network," he explains. "What we're trying to do is take the best of both media and crunch them together."

Not fade away

Retaining, not abandoning, traditional forms of media is somewhat the message James Marsh also brought to the Ottawa gathering.

As editor-in-chief of McClelland & Stewart's *Canadian Encyclopedia*, Marsh has shepherded the publishing house's first print edition in 1980 through to its new all-in-one CD-ROM format. Books, as far as he's concerned, will never become obsolete.

The package in which they come, however—on CD-ROM or over the Net, for example—will likely adapt to emerging technologies.

"My concern is that producing new media should follow a publishing, rather than a broadcasting model," says Marsh. "Television can be very easily controlled by advertisers. In fact, the great genius of television is in the ads, not in the programming. You can't say that about book publishing. There is a solid relationship with the creative community that very few broadcasters enjoy."

Like Lewis and Remborg, Marsh agrees that the one thing the Internet and new media offer the publishing world is unmatched access. "With a CD-ROM, you can automatically search a word through the entire data-

continued on page 22

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New media ... from page 21

base and get a list of articles, which you can't possibly do with a pile of encyclopedias and dictionaries—no matter how big the index."

Marsh says McClelland & Stewart plans to introduce an online system where Net users can download updates to their existing CD-ROMs. Ultimately, that won't

change much, offers Remborg, since encyclopedias, by their nature, are archival records.

"They get old real quick," he says. "In fact, I think you will soon see CD-ROMs being transformed so that they're all on a central network."

Here comes the flood

After all, the continuing deluge of information coming into homes

and offices across Canada will find consumers demanding fast and up-to-date information, says Remborg. "You don't see people buying books these days. They want their information now and as phone utilities start to offer wider bandwidth into people's homes, consumers are going to expect that fast delivery of information."

He sees tomorrow's information

economy as being no different than the way people do their banking today. "I would much rather go to an automated bank teller than go into a bank... Let me do my mundane banking through an instant teller. When I have a question about an RRSP (registered retirement savings plan), they (can) give me a quality person to talk to." ♦

Teenage girls edge out boys in computer programming

• • By CHRISTOPHER GULY • •

So much for the old notion that boys do better at math and science.

A recent Statistics Canada report on computer literacy found that 27 per cent of females between the ages of 15 and 19 had written a computer program in the previous year. That finding put young women ahead of their male counterparts, 24 per cent of whom had written coded instructions for a computer.

StatsCan conducted the survey in 1994 and released the results in a report called *Computer Literacy—A Growing Requirement*.

Young female computer power isn't entirely a surprise. A 1993 national survey found that student math skills had no gender differences.

It's not just the students who are becoming more computer literate, however.

The StatsCan study, for which 11,500 Canadians were interviewed, reports that 70 per cent of elementary and high-school teachers and 95 per cent of university professors used computers.

While computer use is increasing in schools, particularly for teenage girls, though, access remains a problem. Quebec students, for instance, practically have to fight to use a computer, because the ratio of students to computers is 21 to 1.

Nevertheless, one half of Quebec adults reported they could use a computer—the same as adults living in Manitoba, Saskatchewan and Nova Scotia—and more than the less-than-half numbers of adults living in Newfoundland, Prince Edward Island, and New Brunswick.

In British Columbia, 58 per cent said they were computer literate, while the numbers were 60 per cent in Ontario and 64 per cent—the highest rate—in Alberta.

Across the country, StatsCan says that a bit more than half the Canadian population can use a computer. ♦

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Interactive "infopreneurs" struggle to survive

• • By M.D. EDWARDS • •

In the interactive-media industry, everyone agrees that small, creative developers are the steam that drives the engine. In the same breath, it is also acknowledged that the market demands from these developers a keen sense of business savvy if they want to survive.

Those paving the way to the brave new future are the "infopreneurs," the iconoclastic developers of multimedia products. Industry observers look to these independent mavericks to provide the creative breakthroughs. The economic realities of the industry, however, threaten the survival of these independent developers.

Smaller companies are finding the fierce competition daunting, and the option of selling out to a larger player is one way of paying debts—but will the developers of the new technology be bankrupt and forgotten after the larger companies have bought their ideas and moved on? When a Canadian company is bought out by an American company, an added level of anxiety is present. Is this the nature of business, or are we selling ourselves down the river?

One example of a company that did sell everything and then continued creating and competing in the market is Neo-Visuals Inc. In 1988, Neo-Visuals sold its assets to a major

American software company (SAS Institute of Raleigh, North Carolina), leaving itself with little more than its name and some equipment. They are now out in the market with an exciting new CD that brings animation production into the home.



According to Steve White, the President of Neo-Visuals, "It is a bad strategy to want to be acquired, but it happens whether the company is large or small."

Savagery is the norm

White deftly explains the conundrum of the multimedia developers: "[S]mall companies have far more entrepreneurial skills than do the larger companies. They can create, adapt, and change while the larger company is still trying to decide if the concept should be studied."

"The small company will fail, however, if it has not been able to capture a significant position in the market before the larger company can focus its resources and expertise. By that time, a large company can simply buy any missing technology while using its tremendous resources, channels, and contacts to dominate the market."

"It may consequently appear that high-tech is a very savage place: acquire or be acquired."

In truth, it is the normal state of the industry."

The multimedia industry is moving quickly and it has few rules or conventions. There are times when selling a concept outright, collecting the money, and going back to create something newer and better might just be the right business move.

This wild-west concept of the industry's future is shared by Alfredo Coppola, president of Animatics Multimedia Inc. Although Coppola is confident about his pilot project, MODE, an interactive, online soap opera that targets the college student/bar crowd, he is also a pragmatic businessperson. He believes that good business sense means being flexible.



According to Coppola, the interactive media industry is without borders. "In the new media, it doesn't matter where you are, there are so many new guidelines to be written, and new formats to be explored, that it is everybody's open forum. The next five to ten years are going to be very exciting."

You scratch my back...

It could be seen as a symbiotic relationship.

Smaller companies need the larger companies, if not for a complete buy-out, then at least for partnerships in development and distribution. The large, powerful companies need the small independents to increase the competition and provide the creative material.

Anne McKeon, a marketing manager for Microsoft Canada Inc., is willing to admit that the small-to-medium-sized company can react more quickly to the demands of the market. "A lot of the new stuff is coming from smaller companies, who are very creative," she says. "At Microsoft, we are pretty much going to bank on the big ones, like *Flight Simulator*."

Representatives from Microsoft Canada Inc. seem reluctant to use the term "buy-out." The general philosophy is that there is room for everybody: when it comes to making deals, or buying out a company, each deal is different. A developer can create a product and sell it outright, or keep the copyright and have its company name advertised in the software.

According to McKeon, companies like Microsoft are not out to dominate the market. "Competition is healthy and gives more choice to the consumer."

In this symbiotic world, however, the small bird who feeds in the mouth of the hippopotamus must be careful not to be swallowed. Dan Donaldson, president of Omnivore, a software

continued on page 24



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You can be replaced by a machine

• • By CHRISTOPHER GULY • •

If you feel your co-workers aren't logical enough, computers may soon be able to fill the void.

Programs, dubbed "case-based reasoning systems" (CBRS), are popping up in various industrial settings that use "common-sense" approaches to help solve problems with

everything from printers or modems to film-making equipment.

For example, DuPont Canada Inc. is testing a CBRS prototype—originally developed by Atlantis Aerospace Corp. in Brampton, Ontario, to help repair planes—to assist in maintaining equipment that melts plastics into yarn, film, and resin.

Complexity? No problem

Because aircraft equipment is so complex in its design, the accompanying repair manuals often fail to anticipate problem areas. That's where CBRS comes in. The program contains problem scenarios and how they were resolved. Rather than reinventing the wheel—or wing—a mechanic simply punches in the

symptoms of the mechanical problem to find cases that correspond with the latest challenge.

Furthermore, the logic-friendly computer program serves as a database to store worker intelligence—long after an employee leaves.

For companies with a keen eye on employee productivity, Atlantis is touting CBRS as a way to reduce time spent on problem solving and quicken the method of obtaining positive results. The only significant corporate expense comes with the initial set-up, which can cost as much as \$1 million.

Atlantis doesn't have a monopoly on CBRS, however. In Burnaby, BC, Simon Fraser University runs its own Case-Based Reasoning Group, which has developed an artificial-intelligence software program now being used by Rogers Cablesystems Ltd. to handle customer telephone service calls. Using a CBRS, Rogers service representatives are prepared for typical cable-TV problems and can guide subscribers in solving their own problems based on case scenarios.

Meanwhile, Atlantis has been working with Hamilton-based Westinghouse Canada Inc. in testing CBRS to help locate and repair faulty motors that drive industrial equipment.

Computers that draw on human experience aren't going to be limited to major companies, however. Once its program becomes commercially available in 1997, Atlantis plans to establish a subscription service for smaller firms. For a fee, which will start at \$100, companies can access CBRS online to get help with solving a problem.

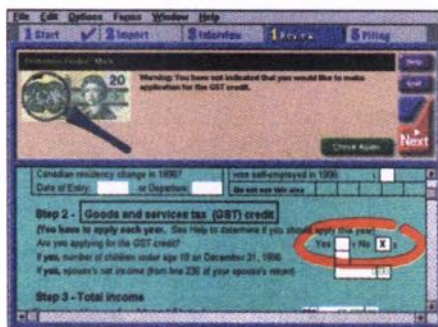
Eventually, computers that draw upon human expertise could replace the real thing. A recent study looking at the Westinghouse experiment, conducted by Atlantis and information systems professor Ali Montazemi from McMaster University's Michael G. DeGroote School of Business in Hamilton, found that users got more consistent advice from CBRS than from their colleagues. ♦

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Interactive "infopreneurs" ... continued from page 23

developer that has sold properties to major Canadian publishing houses, suggests that small, interactive-media companies look for "hard-boiled" copyright protection and yearly royalties.

Says Donaldson, "When you sell your copyright, it's not just the product you are selling. You are losing the potential to develop your product further." He explains that it is the ideas behind the product that have a viable future. Companies should protect their copyright, he advises, so that they will be able to profit from the auxiliary ideas that stem from the main concept.

Isabel Hoffmann, president of Hoffmann and Associates Inc., also feels very strongly about smaller companies holding on to their copyrights—but she takes a patriotic stance. According to Hoffmann, it is bad business to not get credit for the work that you did.

"The more we sell out, the more we deplore the cultural content in Canada, and the more we will suffer. We have a better society here, a better education, a much better way of living. And I say to companies that sell out, well, too bad, you must not believe very strongly in your culture, or in the thing that you have produced."

M.D. Edwards is a freelance writer. ♦

Big Brother watches us all

• • By DAVID ROSEN • •

In Orwell's dark satire, *1984*, the population is watched constantly by an omniscient government. Catch phrases constantly assure the populace that the government (in the form of Big Brother) is watching. Pretty bleak stuff, right? Yep. Couldn't happen here, right? Er, not so fast.

Bought anything by credit card recently? Well, let's hope it's not something personal, since credit-card files are about as secure as the corner mailbox—sometimes even less so. The theft of a laptop computer a few weeks ago in the San Francisco area with over 300,000 unencrypted credit-card numbers, expiry dates, account names, and addresses demonstrates the care with which credit-card companies protect our privacy.

Did you know that all credit-card companies track your every purchase on a hourly basis? The companies say they do this for two reasons: preventing fraud and target marketing to customers. Great.

Be nice to that traffic cop who pulls you over during a RIDE spot-check. He or she knows your home address, any outstanding legal warrants, your eye colour, your age, and lots of other interesting personal information.

Taking its toll

If you live or travel in Ontario, you can try out the new ETR 407 Highway, "Canada's First Express Toll Route." Instead of dropping quarters into a basket, you can have the government monitor where you go along the highway and then automatically debit money from your bank account.

Don't want to sign up? No problem, the highway has cameras trained on your license plate and happily snaps a picture of your car. In a few weeks, you get a bill in the mail.

Not planning on driving on Highway 407? Don't worry. Other major streets and highways across Canada are being monitored 24 hours a day, 7 days a week. Welcome to privacy, Orwell style.

Been out walking in any mall, bank, subway station, or other "public" place recently? You've probably been caught on camera. Some Canadian cities, such as Hull, Quebec, have surveillance cameras strung up on high poles to combat crime.

How 'bout cocooning yourself in the privacy of your own home? Anybody who saw the movie *Sliver* a few years ago will never look at apartment surveillance cameras in quite the same light again. With Pay-Per-View TV tracking what you watch, and when you watch it, you'd better be watching Disney—and nothing else.

Training tapes

Gee, maybe you should call somebody and ask them what you should do. Don't call your broker, banker, or anyone else in a large company, though. They often record all incoming calls "for training purposes." Besides, even supposedly confidential folks, such as lawyers, are required to report the activities in their trust accounts, including the names and amounts of their clients. The Law Society says they require this reporting to protect you from your lawyer—but who's protecting us from the Law Society?

Of course, with controversial technologies

such as Caller ID from our friendly phone company, we can all learn the names of people who call us in the middle of the night—unless they use the Caller ID block service (available at a cost, naturally).

Even if they don't have Caller ID, anyone can find you are by using Call Return. With some off-the-shelf database software, mail-order companies can easily match your home phone number with your name,

address, and last few purchases, all before they answer your phone call.

Oh, if you're thinking about using a cell

continued on page 42



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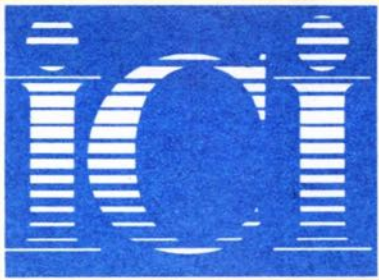
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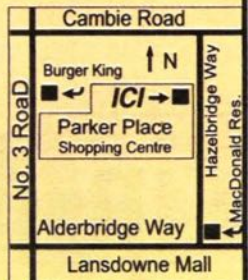
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Zip drive *a mixed blessing*

• • By MYLES WHITE • •

Everyone appears to want to replace the 1.44 MB floppy disk as the main means of rewritable, removable storage for the PC.

In just the past few years, for example, we've had the Bernoulli drive (Iomega—up to 230 MB), the floptical drive (Iomega and Insite Peripherals—20 MB), the 2.8 MB floppy (various developers), the Syquest drive (Syquest—up to 230 MB), the magneto optical (MO) drive (various developers, various capacities), the "120 MB floppy" LS-120 (Matsushita and 3M), the EZ-135 (Syquest), the JAZ drive (Iomega), the recordable CD-ROM (although it is still a write once, read many or WORM device), and the Zip drive (Iomega and Epson).

Of this group, four specialty drives—with price tags to match—have survived long enough to have several generations (Bernoulli, Syquest, MO, and CD), two have failed to catch on (floptical and 2.88 MB

floppy), and the remainder are still in the wait-and-see category (although the "EZ" seems to be fading fast). We'll take closer looks at the JAZ and LS-120 at another time.

The Zip, developed by Iomega, but now manufactured primarily by Epson for both companies, comes in two external models (SCSI or parallel) measuring about 6 inches

by 8 inches by 1.5 inches thick. A third, internal model is planned, but wasn't shipping by press time.

Zip drives will use 25 MB or 100 MB cartridges—roughly the same size, but slightly thicker and heavier than a standard 3.5-inch floppy diskette. The Zip drive won't read from or write to

standard floppy disks. 100 MB cartridges cost about \$22 each and can be purchased in boxes of three.

Zippy

Zip drives have significantly faster access speed than floppy drives (about 29 millisecond seek time), but throughput—the speed

at which data will get from the drive into your system once it has been located—varies depending on the interface (up to 60 MB/min for SCSI, 25 MB/min for parallel). Because it weighs just over a pound, the external parallel Zip appears ideal for use with notebook computers, and both SCSI and parallel versions come with "guest" software, so the whole drive can easily be moved from computer to computer, for taking large files home from work.

The SCSI version comes with a 50-pin Centronics to 25-pin SCSI cable. The drive itself has 25-pin connectors, so at least one of your other external SCSI devices needs a 50-pin Centronics connector (or you'll need to purchase another cable).

At first blush, the Zip appears to be a viable alternative backup device instead of a tape drive or floppy drive. You still have to change cartridges more often than for a high-capacity tape, but you'd do it significantly less often than with a standard floppy drive. None of the general backup software currently on the market, however, including Windows 95's backup program, recognizes

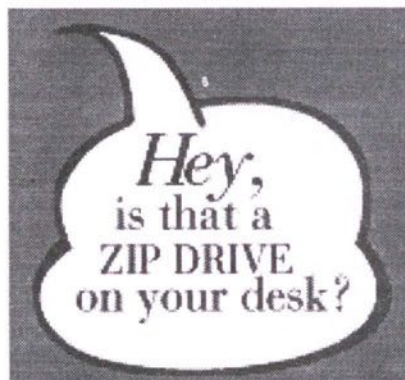
the Zip as a backup device (when it gets to the end of the first cartridge, it stops instead of prompting for another).

Although Iomega has freely downloadable backup software at its Web site (<http://www.iomega.com/>), the software didn't ship with the Epson version of the drive I bought.

Installing the Zip will also scramble your drive letters. Even if you only have one floppy, it installs as though it were an additional hard drive, not as a second floppy (i.e., drive B:). So, if you have one large hard drive now, partitioned to drives C: and D:, and a CD-ROM installed as drive E:, the Zip will insinuate itself just after your last hard drive letter, becoming E: and pushing the CD-ROM to F:.

This is no big deal unless you have a lot of software installed from CD-ROM that remembers the letter of the drive. In this case, you'll either have to edit all of the INI files and Registry entries you can find or reinstall the CD-based software.

Iomega or Epson Zip drives are selling on the street for about \$255 to \$299 (parallel or SCSI). ♦



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Will computers outthink us?

By SAUL CERNOS

In Gulliver's Travels, published in 1726, Jonathan Swift described a fictional machine that writes books. With today's level of artificial intelligence, such a feat is no longer futuristic—a wide array of computerized machines can actually mimic human thought. Recent technological developments, however, have given rise to concerns that the silicon brain may one day outthink the human brain.

Gone are the days of the simple word processor. So-called "intelligent" computers can monitor complex operations, analyze data, detect problems and opportunities, provide advice, make decisions, and even take action in real time.

Products range from frivolous to practical. Comtrad Industries of Midlothian, Virginia, has developed LitterMaid, a device which does the dirty work for cat lovers. An electronic eye senses when the feline leaves its litter box, and a microprocessor prompts an automatic sifter to deposit waste into a sealed container.

Artificial intelligence has also been used to try to develop the ultimate checkers player. In 1959, Samuel's checkers program won games against some of the best human players. Chinook, a world championship checkers program developed by researchers at the University of Alberta in Edmonton, has taken on human experts and has almost always emerged the winner. Chinook's memory contains billions of positions. Its short-range objective is to develop a program capable of defeating the human World Champion in a match, while its long-term goal is to solve the game itself.

Pod people?

Then there's Whale Watcher, a software

package based on the combined knowledge and experience of actual whale experts. Manufactured by Acquired Intelligence Inc., of Victoria, BC, Whale Watcher asks users questions in order to identify whales they have observed and is really intended to illustrate the company's more practical products, all of which centre on the acquisition of human knowledge and experience for use in knowledge-based systems.

For instance, Acquired Intelligence has developed an "intelligent," computerized radio-interference advisor that Industry Canada inspectors use to identify and locate sources of interference. According to Acquired Intelligence president Brian Schaefer, the advisor has digitally captured the diagnostic know-how of one of Canada's leading radio inspectors, David Sinclair of Victoria.

"We worked with Dave, and from him discovered the decision-making paths for discovering the various forms of interference, and we have embodied these in our system," Schaefer says. He explains that developers of artificially intelligent machines base their work on their understanding of the human brain, seeing complexities and patterns of human thought as "attributions that stem from pattern recognition. When you have a gut feeling or intuition, at some level what is taking place cognitively is that you are doing

a match of the situation—you are observing a known pattern and consequence that's recorded in your brain."

No more routine?

One of the main benefits of artificial intelligence, Schaefer says, is that it can automate routine tasks, freeing individuals for pursuits involving a higher level of creativity. "When you take the most mundane decision-making off the backs of people, you free them up to use their capabilities in more creative ways," he says. "A lot of the work people do, they really do not want to do, and there are at least a couple of routine aspects in all jobs

continued on page 30

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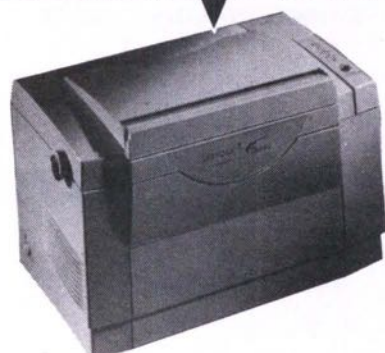
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Will computers outthink us? ...

continued from page 28

that could be done by artificial intelligence."

In partnership with UWI Unisoft Wares Inc., also of Victoria, Acquired Intelligence has developed automated, intelligent forms. Schaefer says the idea is to reduce or eliminate most of the routine aspects associated with processing employment applications,

travel-expense forms, leave-of-absence requests, and other paper forms.

"Ultimately, somebody sits at a desk and does the decision making to determine whether a request should be approved or denied. It's exactly that kind of administrative decision-making that can be captured and made part of the electronic version of the form."

The company supplied a prototype pro-

gram to the University of Victoria School of Public Administration, which used it to weed out unqualified candidates. "There are often thousands of applicants, but one-third of them might not meet any of the criteria," Schaefer said. "Eliminating these cuts the amount of time required to go through the applications, leaving staff with the most interesting part of the job—interviewing likely prospects."

Forty years of AI

Although artificial intelligence conveys futuristic connotations, the technology is not altogether new. In 1950, the Turing Test—Computing Machinery and Intelligence—was proposed. IPL-11, the first artificial intelligence language, was developed in 1955, and a year later the Logic Theorist was created to solve mathematics problems. Finally, in 1956, the term "artificial intelligence" was formally adopted (see Milestones in the Development of Artificial Intelligence, by Mark Kantrowitz).



Although significant technological feats have been accomplished through artificial intelligence, there have also been serious mishaps. In 1960, for example, a US Defense Department computer mistook the moon for incoming missiles.

And, as computers perform tasks traditionally done by human beings, critics warn about various consequences. Michael Rosenberg of the Coalition Against Technological Unemployment predicts machines will develop increased capability and take over jobs and functions that really should be done by people.

"Computers can already do many jobs, but people still think they can't do skilled, intelligent, and thinking work—the jobs that people go to university for, the jobs that involve understanding what you're doing," Rosenberg says.

"But I think that those jobs, as well, are within the reach of computers, and it probably won't take much more than 15 years to reach that point. Most of the things that were said to be impossible in the late sixties, like language translation and vision systems, have already been done. The only things that haven't been done are significant improvements in abstract and pattern-based thinking to produce a general intelligence, but there have been continual improvements to hardware and software."

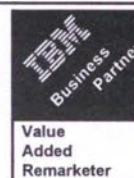
Rosenberg, who has worked as a programmer on hospital laboratory computer systems, says he is also concerned about the displacement of workers and the subsequent loss of their voice in overall economic decision-making. If the ability to maintain production no longer depends on people, an important check-and-balance will be lost, he explains.

He adds that he ultimately believes unfettered technological development will lead to a scarcity of food and other natural resources.

Saul Chernos is a Toronto journalist who writes about computer, media, political, and social issues. He can be reached at schernos@torfree.net

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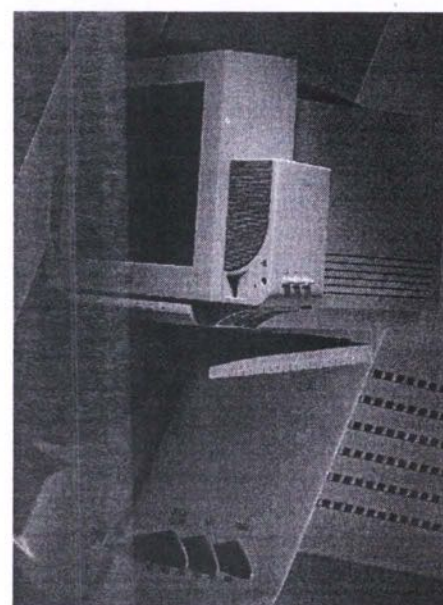
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Wired communities now appearing

• • By SANDY MCMURRAY • •

What do you think of when you see the phrase "wired community?"

If you're thinking of a home like the Jetsons', or the "Home of the Future" from the 1939 New York World's Fair, think again. Most of the people touting "wired communities" are selling a high-speed Internet connection plus some vague promises for the future.

This is the story of four Ontario communities that are "wired" in one way or another. Each one is different, but they all have something in common: they're all betting that getting connected now is going to be important in the future.

ThoroldNet

On August 27, 1996, the city of Thorold, Ontario, became the first Canadian municipality to launch a community intranet on the World Wide Web, ThoroldNet (<http://www.thoroldnet.com/>). Tax-paying residents now have limited access to the city's computer network.

"We believe this will be the wave of the future," says Mayor Mal Woodhouse, "because it improves the services and information we can offer to citizens while cutting costs, red tape, and eliminating that frustrating line up."

ThoroldNet and the Thorold Web site (<http://www.thorold.com/>) offer a number of services to residents. Thanks to ThoroldNet, residents can now apply for building permits,

get a dog license, and even sign out a library book without leaving home. Agendas and minutes from council and committee meetings are posted online. Community information on the site includes the Thorold job bank, local history, and activities for children in "Kids' Korner."

In the future, the city hopes to use ThoroldNet to conduct virtual town-hall meetings and electronic plebiscites on community issues.

Thorold residents who don't own a computer will be able to access the City's online services via terminals located at City Hall, the library, and the Chamber of Commerce office.

Northtown

Northtown is Tridel's new housing development in North York—a 25-acre site on both sides of Yonge Street, just south of Finch. Northtown will eventually be home to some 2,800 families. About 400 families are expected to move in by January 1, 1997.

When Phase One of Northtown opened in November, the proud new homeowners found their residences wired with Rogers WAVE, the 500 Kbps cable modem system that Rogers has been testing in Newmarket. Northtown homeowners are the first in Metro Toronto to enjoy this high-speed Internet access.

The Northtown development is also equipped with everything needed to receive new digital-cable services. Rogers says that digital cable, when implemented, will make it possible to compress cable TV signals, allow-

ing cable companies to make more channels available to subscribers. Digital cable will also provide a clearer audio and video signal. These services are not yet available, but when they are, Northtown residents will already have the necessary hardware in place.

Other Tridel developments, including the Pavillions at King's Landing, will also be wired by Rogers. The Pavillions development is scheduled to open late in 1997 or early in 1998.

Calumet College

Students in residence at York University's Calumet College would not be impressed by the promise of fast Internet access at Northtown. The residents of Ontario's first wired residence have "been there, done that." Every bedroom in the Calumet residence has a high-speed ethernet connection to the Internet, allowing residents to surf or network at speeds up to 10 megabits per second.

Calumet College, one of seven undergraduate colleges at York University, was built nearly six years ago. All the wires and plugs needed to network the Calumet residence were installed when the college was built. It was a natural fit, since the college's mandate includes a focus on technology and the arts.

In addition to their tuition and residence fees, residents at Calumet pay a \$130 fee to access to the college's network. In return, they get access to e-mail, the Web, Internet

newsgroups, FTP, and Telnet, as well as Web space for a home page. Approximately 125 students share each of the college's two 10 Mbps ethernet networks. Calumet also has its own (little-used) newsgroup: york.calumet.

Both Mac and PC users are welcome at Calumet, as long as their computers can accommodate an ethernet card. Students don't need to know anything about networks or ethernet to connect—the staff at the college looks after all the technical stuff.

Residents have access to other equipment in the Calumet computer lab, including printers, scanners, and video-capture equipment. Students can send their documents via the network to be printed in the computer lab, and pick them up later.

Of course, connecting an entire college residence as a network provides another opportunity: the chance to enjoy online games such as *Doom*, *Descent*, and *Marathon*. Of course, work comes first—yeah, that's the ticket!

If you're hungry for bandwidth, and you think part-time classes at York might be the answer, think again. Residence at Calumet is limited to full-time students, and costs about \$3,800 for the school year. Students are considered on a first-come, first-served basis, and scholarship students and people from outside Metro Toronto get top priority. Still, it sounds like a cool place to live.

continued on page 33

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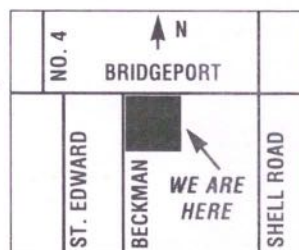
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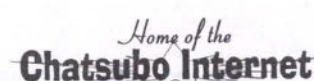
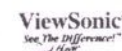
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Wired communities...

continued from page 31

Stonehaven West

"Residents of Ontario can now live and play on the infoway, from the comfort of their own homes." With those words, Spectrum Communities announced Stonehaven West in the fall of 1995.

Stonehaven West, "Canada's Premier Interactive Community," is located at the south end of the town of Newmarket, Ontario. The project is an ambitious experiment in social and technological planning. According to Robert Campbell, trial manager for the consortium behind the project, Stonehaven West "will provide crucial research regarding how Canadians work, play, and live on the infoway."

Stonehaven West has been in the planning stages for about two and a half years. The 80-acre, \$130-million development is a project of the Intercom Ontario Consortium and its members, including Spectrum Communities, Bell Canada, IBM Canada, and Apple Canada. Like the Calumet College residence, family homes at Stonehaven West have been constructed with networks and connectivity in mind. An ethernet connection in the home will connect residents to each other, and to the Internet, using a high-speed ATM network.

In each residence, "ports" connected to the In Home Network will enable residents to share information between computers, to connect one VCR to several televisions throughout the home, or to play one stereo on speakers all over the house. The In Home Network

is also the control panel for temperature control, home security, and emergency services.

The Intercom Ontario consortium intends to make "video mail" and other forms of video communication a part of life at Stonehaven West. Intercom suggests the technology could enable parents to have face-to-face communications with a local doctor in an emergency situation; children will be able to work on group projects without leaving home; and students who are home sick from school will be able to establish a video and audio connection to the classroom from their bed, so they don't miss anything. Intercom doesn't say whether the sick kids will think this is a good idea.

Cary Solomon of Spectrum Communities says the emphasis at Stonehaven is not on bandwidth, but on community. Families do not buy houses based on whether or not they're connected to a T1, but consider other factors like access to schools and hospitals, and the neighbourhood itself. Stonehaven West's long-term plans include connections with libraries and other cultural institutions, as well as a relationship with a "wired" school that the York Regional school board is currently building.

Houses at Stonehaven West start at about \$150,000, with the average home going for about \$200,000.

Are we there yet?

It remains to be seen exactly what the "wired community" of the future will look like—probably some combination of the technologies mentioned above—but it's clear that we're not there yet. ♦

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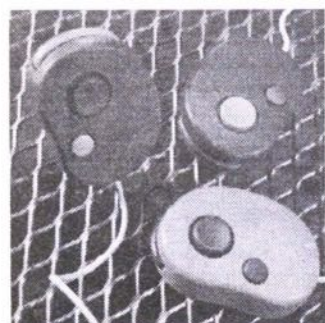
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MIGHTY mini mouse!

Compiled by KEVIN LINFIELD



Palm Mouse family

Fujitsu Takamisawa is now offering a miniature, portable, hand-held mouse designed for use with laptop computers and other portable devices with a PS-2 mouse port. The Palm Mouse provides one-handed cursor control, making it good for travelling, giving computer-generated presentations, or wherever work space is severely limited.

Designed to fit in the user's palm, it weighs less than 30 grams and comes with a 1.7 metre cable. Palm Mouse comes with a MSRP of US\$36.

For more information, visit <http://www.fujitsufta.com/> or call 1-800-380-0059.

Olympic fever hits early

It is never too early to get a head start! The 1998 Nagano Winter Olympics' Internet home page is now online. Learn more about the

upcoming winter games (in both Japanese or English) from <http://www.nagano.olympic.org/>

The site is produced by IBM, the official Internet Information System provider to the 1998 games. The Olympic home page provides a variety of information, including facts, figures, photos, and video and audio clips.

It's virtually art

Rogers Communication Inc. has launched Artwave@Rogers, the first-ever virtual gallery of contemporary art. Featuring contemporary Canadian works from 11 of the country's most prominent art museums, it occupies more than 150 Web pages. Point your favourite browser to <http://www.artwave.rogers.com/> and have a look.

Free days/weeks/months

Since last September, more than 84,000 computer calendars have been downloaded from DigiDay's Web site. Best of all, they're free! Download one of their many designs from <http://www.visionx.com/ddmain.htm>

Cross-platform gymnastics

Adobe has announced the availability of Acrobat 3.0 software for Windows, Macintosh, and UNIX. Using their popular Portable Document Format (PDF), users can easily produce documents that are easily viewed and transported in many different ways (including through your favourite Web browser).

Acrobat for each operating system has a MSRP of US\$295. Don't forget that Adobe's Acrobat Reader (a PDF viewing application) is freely available for Windows, Mac, OS/2, and UNIX from Adobe's Web site. More information can be found at <http://www.adobe.com/> or by calling 1-800-272-3623.

Vancouver catches the Wave

Slowly but surely, Rogers Communication's Wave Service (cable-modem access to the Internet) is gaining steam. Vancouver is the latest city to be able to access the Internet via their TV cable line. Although it costs more, cable access to the Internet is faster



than conventional modems and doesn't tie up your phone (or cable!) line. You can obtain more information at <http://www.wave.ca> or call 1-800-THE-WAVE.

In the palm of your hand

Just when you thought notebook computers were getting really small, Hewlett-Packard Ltd. has previewed its new Windows CE-based palmtop PC with what is claimed to be the widest display among its peers. It features an 80-column, 640 x 240 LCD display. The product-release date is expected to be mid-1997. For more information see <http://www.hp.com/handheld/>



HP's new palmtop PC

Cyrix vs. Intel, where it matters

Confused about Cyrix CPU chips and how they compare to Intel's? If you have a Cyrix chip in your PC and were wondering how well you can play games with it, check out Cyrix's Games and Multimedia Web site at <http://www.cyrix.com/process/support/games.htm>

This site is updated weekly to answer issues or questions regarding Cyrix products with game and multimedia developers.

continued on page 42

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Webanalyzer not quite dependable

• • By CLIFF CUNNINGHAM • •

Usefulness and reliability are two key elements in the assessment of any software, but they loom even larger when the software is designed to analyze and report information on which decisions will be based. *Webanalyzer 1.1*, by Toronto's Incontext, gets mixed grades in its attempt to dissect Web sites. While its usefulness makes it a winner, its questionable reliability limits its effectiveness.

Webanalyzer's analysis of the Web site. It was a model of efficiency and contained everything you need to study the site.

Unfortunately, not everything reported was accurate. Elements clearly marked in red as broken links were not always broken. *Webanalyzer* labelled as broken the image

files for James West and Artemis Gordon, but both images appear in the proper places when viewed with *Netscape*. Since one of the big selling points of *Webanalyzer* is its ability to identify (but not fix) broken links, faulty reports like this will merely serve to waste the time of a Webmaster.

Also labelled as unknown content were the biographical sketches of the main characters, even though they contain nothing but text and graphics.

The program consumes less than 2 MB of disk space, and requires Windows 95 with 8 MB of RAM. ♦

i n f o
b o x

Webanalyzer, from Incontext. US\$149.
For more information, phone (416) 922-0087,
fax (416) 922-6489, or visit
<http://www.incontext.com/>

Undoubtedly, there is a need for a product like *Webanalyzer*. Holistically presenting a Web site as a graphical display instead of a myriad of linked pages lets you see what is available at a glance. Simply entering the URL of a page is enough to send *Webanalyzer* to work: within 10 to 20 minutes for most sites, every element is available for study in three different views.

In the upper right is a concentric map, known as the Wavefront view, which contains icons for documents, images, application links, mail-to links, audio files, video files, FTP, Gopher, and unknown content. The last category can cover a lot of ground: the hundreds of *Netscape Navigator* plug-ins are labelled unknown, as are file types such as Java and Shockwave.

At upper left, the Link view shows all the in-links and out-links from anyspecified file. Along the bottom, File view lists all site elements by name, content type, size, date last modified, depth, number of in- and out-links, and title. Simply clicking on any of these headers will sort the entire list by that item. Also impressive are the filters that enable you to display only the elements of interest, such as text or graphic files, or broken links.

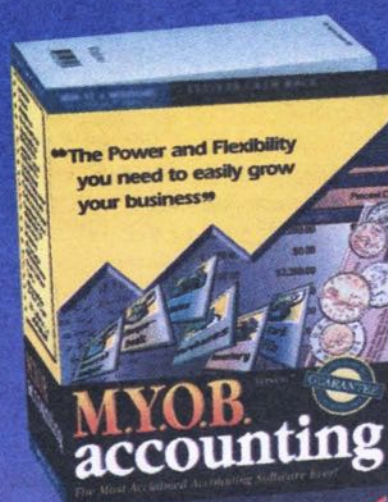
This is a test

As a test, I analyzed a Web site for one of my favorite television shows from the 1960s: *The Wild Wild West* (<http://moose.uvm.edu/~glambert/twww1.html>).

Webanalyzer created a subdirectory to handle all the files associated with the analysis. The files sizes (in KB) were docs (85.8), images (116), mmedia (67.5), report (138), and temp (85.4). The total size, about half a megabyte, was quite manageable, although users might want to check their free space before doing a full analysis of big Web sites. The files in docs are optional: these are created when you want to make a copy of the site on your hard drive, so that it may be viewed offline.

A closer look revealed that the mmedia directory contained audio files, while the so-called project file (west.icw, another 21 KB) was in the main *Webanalyzer* directory. The overview file, in the report directory, was a thorough, hyperlinked report on

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Putting "personal" into your PIM

• • By ALAN THWAITS • •

Buying a PIM is like hiring a personal assistant. Both come in all sorts of shapes and sizes, so the task becomes a matter of getting either the software program or the wetware entity that will a) work hard at doing the needful, and b) do the job in a way that matches your needs and style.

info box

AnyTime Deluxe, from Individual Software Inc. Includes Windows-compatible CD-ROM and 3.5-inch disks. \$49.95
For more information, contact 1-800-331-3313 or <http://www.individualsoftware.com/>

Needless to say, many are called, but few are chosen. *AnyTime Deluxe*, from Individual Software Inc., is one of the latest contenders.

Like any good PIM, *AnyTime* offers a day planner/scheduler, to-do list, address book/telephone directory, and a notebook/journal to create and store letters, memos, journals, expense reports, and all the other minutiae that make life in the fast lane so much fun.

That's like saying that the applicant for the job of Personal Assistant to the President (you) can use the telephone, work with a word-

processor, and greet visitors in a recognizable form of English—good for starters, but nothing to clinch the interview.

What makes *AnyTime* stand out from the PIM crowd, you ask? Well, the designers have focused on two areas—customizable interface and output possibilities (which is like saying the Personal Assistant can not only walk and talk, but can match the style and "culture" of your business and also meet your output requirements at the end of each day).

Multiple options

"Customizable interface" means usability, too. Scheduling appointments can be done in any of seven different formats—day, week, month, or year views in either calendar or graph style (the latter are handy for seeing what free time—if any—you have available). *AnyTime* offers full drag-and-drop capability—rescheduling appointments can be done easily and without fuss, and appointments can be changed to "to do's" (and vice versa) the same way.

AnyTime is good about details. Not things like how much sugar you take in your coffee, but in allowing you to view information in as much or as little detail as you wish (four view levels are available). Or in providing an "autoschedule" utility, with which appointments can be created from address book contacts. Add the ability to organize information by groups, alarms for appointments and to-do's (complete with snooze feature!), and a "search by keyword" utility, and *AnyTime*

can be both personalized and energetic.

Print it

Output? Well, it's no good making all those plans if you don't have them at your side, does it? So *AnyTime* offers more than 100 customizable layouts for your agendas, contact lists, travel planners, in templates that fit most popular paper-based organizers. Just design the layout to suit yourself, then print pages that will fit your Day-Timer, Day Runner, Franklin, or Filofax binder! You can also print address-book information directly to envelope, label, and letter formats.

One small quibble. *AnyTime Deluxe* loaded more slowly on this reviewer's 486/33 8MB RAM machine than *APD Organizer* or *Sidekick* (though not as slowly as *Lotus Organizer*!). Not an issue, though, if the program is kept working in the background. That's

not something you could do with that newly hired Personal Assistant—humans, after all, need some time off! ♦



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FUZZY DATA? TRY THIS WARM-AND-FUZZY DATABASE

• By LYNN GREINER •

Data comes in many forms. Sometimes it's quantifiable, and can be expressed in fields and objects. Sometimes it's more fuzzy. Electronic-mail messages are pieces of data, as much as are the cells in a spreadsheet.

askSam for Windows is an easy-to-use database program that does especially well with the "fuzzy" sort of data. Yes, it can handle fields, in a limited sort of way, but its real strength lies in the organization of free-form information. It will automatically find and create such fields as you're likely to need as indexes (but you don't "need" them). Searches are based on the entire contents of a file.

Records are called Documents, and can consist of anything from a few words or numbers to a disk-drive full. A Field can be up to 16,000 lines long, and there can be an unlimited number in any record. A file can be up to 4 GB.

Data entry, such as it is, can be accomplished by typing into a form (allowing entry only into fields), using word-processing mode (which allows free-form entry anywhere in the record), or by importing an existing file. *askSam* can inhale text files, *dBase* databases, various forms of delimited data, *Eudora*

and CompuServe mailboxes, HTML, *WordPerfect*, and *Word* documents, RTF files, and files from the Lexis and Nexis commercial databases.

You can also obtain a filter pack with ten other formats. *askSam* will examine several records of an imported file (you choose how many) and attempt to find fields in them (you define the field delimiter).



Frolic in the fields

For example, if you are pulling in an e-mail file, you may tell the program to look for a colon (:). It'll then show you things like "To:" and "From:", and ask if they indicate fields you wish defined. If so—bingo!—you now have proper fields in your database.

Well, semi-proper fields, actually. *askSam* only allows you to define a field's length. There's no masking to make sure, for exam-

ple, a telephone number is numeric, or to check the format of a postal code.

If you're looking for a strongly typed database, forget it. *askSam*'s beauty is in its powerful and flexible handling of any sort of textual data, like scanned-in articles (there's an optional OCR module), electronic mail, research notes, addresses, graphics, OLE objects, and so forth.

All data can be searched in several ways (there are even proximity searches, where you can hunt for a word within a certain distance of another—say, in the same sentence, and Fuzzy searches that look for approximations), sorted every whichway, and be reported upon. You can even create hypertext menus for navigation within a database or among databases, using icons as the hot spots.

Reports are easily designed and formatted, with a helpful dialogue that walks you through selecting criteria, deciding on sort fields, setting up the layout (just drag and drop), and running the report. It can be as plain or as pretty as you like (change fonts, adjust spacing—even change text colours), with simple calculations like record counts or group totals, but no fancy math. *askSam* supplies a number of templates that can be modified to suit your purposes.



askSam for Windows 3.0, from askSam Systems. PC diskettes. \$199 (Standard), \$549 (Professional). For more information, contact askSam Systems at 1-800-800-1997 or (904) 584-6590, by e-mail at info@asksam.com or online at <http://www.asksam.com/>. Canadian distributor: MAR Computer Systems Inc. Phone: (905) 738-8105. E-mail: marcomp@msi.net

There's a WYSIWYG word processor in *askSam*, and while it can't rival *WordPerfect* or *Word*, it lets you do mail merges with ease, creating letters or labels the same way you define Reports. And guess what—all of this power is installed in a mere 4 MB of disk space, from three floppies! *askSam for Windows* is a product that bridges the gap between the overkill of database programs like *Access* and *Paradox*, and the total disorganization of a collection of text files.

It's a tool for students and secretaries, managers and moms—in fact, anyone with free form data that needs organizing. ♦

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Computers will finally hear and obey—most of the time

• • By CLIFFORD CUNNINGHAM • •

After 30 years of watching *Star Trek* and wishing for a computer I could talk to, it was with real excitement that I installed *Dragon Dictate* version 2.5 for Windows. While it does not provide the seamless integration of verbal interaction we have come to expect from science fiction, it is more than just a first tentative step in that direction.

Let Alex the Dragon be your guide in the interactive tutorial that covers the essential elements. Both the tutorial and the 216-page manual are not only flawless, but actually a pleasure to use. Being accustomed to manuals whose best destiny is recycling, this one was more than a pleasant surprise. Companies looking to produce their own manuals should check out this one first.

Dragon Dictate is available in three editions: Personal (with 10,000 words active; requires 12 MB of RAM), Classic (30,000 words; 16 MB of RAM), and Power (60,000 words; 20 MB of RAM). I tested the Classic edition on a 100 MHz Micron with 16 MB of RAM.

Specialization

All versions have a background vocabulary of 120,000 words. In addition to the standard vocabulary, five add-on modules are available

for specialized work in the fields of medicine, the computer industry, law, business, and journalism. Each contains another 60,000 terms, phrases, names, and abbreviations. It is also available in other languages: French, German, Spanish, Italian, and Swedish.

First released in 1994, *Dragon Dictate* was developed by Dr. James Baker under the auspices of the US government's Advanced Research Projects Agency. The project received a further boost in 1993 when President Clinton awarded it a technology reinvestment project award. This is not your average, basement-developed software!

It comes with an instructional videotape and a microphone. Just install the software from the CD-ROM, plug the microphone into your computer, and you are all set to begin training *Dragon Dictate* to recognize your voice. In the initial session, which takes about 30 minutes, you have to say a few hundred words (sometimes more than once). Even after this, its recognition capabilities are poor.

Nothing's perfect

You will have to be very patient and dictate for several hours before it approaches its optimum speed of 50 words per minute with an accuracy of 91 per cent. Note that even this rather high level means that about one

word in every sentence will be incorrectly recognized.

The main problem with the current state of the art seems to be context recognition. If I dictate "I want a cup of tea," and follow that "I want a golf tee," *Dragon Dictate* will most likely spell "tee" as "tea." Until real artificial intelligence is built into speech-dictation programs, problems like this will persist.

Dragon Dictate does have competition. IBM has its *Voice-Type Dictation*, and *Kurzweil Voice* just had its version 2 released. The IBM program does not require on-the-fly error correction as does *Dragon Dictate*, where you must keep your eyes on the monitor to catch mistakes as they happen. Letting errors go by means that *Dragon Dictate* will learn the wrong speech patterns, and its performance will get worse.

Kurzweil Voice has been criticized for its requirement that mouse pointing be done solely using voice commands (such as up or left). *Dragon Dictate* puts a grid on the screen when you say "mouse grid." Specifying a grid number places another grid on that small section, so that you may verbally click the mouse on a precise point without using directional commands.

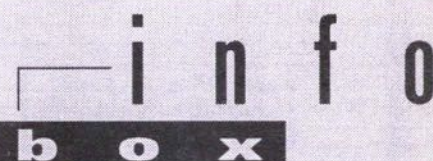
Overall, dictation speeds with *Dragon Dictate* are about 10 words per minute faster

than Kurzweil can handle.




Dragon Dictate is capable of reading text to you, but for this you will need a full-duplex sound card. If you do not have this and like to play music CDs through your computer, you will have to close *Dragon Dictate* first, as all your audio will be muted.

Version 2.52, scheduled for release in the first half of 1997, will feature some performance enhancements for users of *Word 7*.

Ideally suited for those who cannot use a keyboard, and individuals working in a quiet environment, *Dragon Dictate* and its competitors are not quite ready for prime time. It is clear, however, that we won't have to wait until the 23rd century to talk fluently with our electronic friends. ♦



Dragon Dictate, by Dragon Systems, Inc. US\$395 (Personal edition), US\$695 (Classic), and US\$1,695 (Power).
For more information, phone (617) 965-5200, fax (617) 527-0372, e-mail info@dragonsys.com, or visit <http://www.dragonsys.com/>

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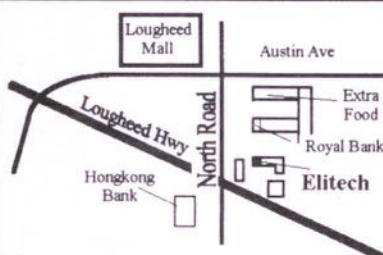
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CANADIAN ORGANIZATIONS STRUT THEIR **IT** SAVVY

Canadian business execs hungry for high-tech success stories need look no further than their own backyard. A consortium of influential technology and business organizations, otherwise known as CIPA (the Canadian Information Processing Association), recently celebrated its fourth birthday, with an annual award-giving ceremony.

• • By SANDRA MINGAIL • •

Twenty Canadian firms, representing education, telecommunications, retailing, banking, financial, and business communities were honoured for their innovations in information technology. Here are a few examples.

Retail info bonanza

In the retailing category, menswear chain Harry Rosen Inc. was recognized for implementing point-of-sale information systems.

Sales staff at each of the chain's 23 locations enter detailed sales data on new customers: what is his preferred suit label and colour choice? What is the gentleman's sleeve length or pant size? What credit card does he normally present? Repeat customers receive immediate assistance without having to re-acquaint a salesperson with measure-

ments or style preferences.

All customer data is instantly accessible throughout the organization. Merchandising staff track buying habits and make decisions on future purchases. Accounting people have sales figures at their fingertips.

Developed by Bellair International, this In-Store Retail Information System (IRIS) incorporates a comprehensive on-screen training module. Staff progress through the self-paced tutorial, then take an online test that quizzes their recall of system functions. Individuals are certified upon completion of training.

Robert Humphrey, president and COO of Harry Rosen Inc., claims a \$500,000 operational saving thanks to the system. In addition, data gathered helps deliver a more targeted audience, hence more effective direct-mail strategies.

Speedy X-ray distribution

Toronto's Hospital for Sick Children was another proud winner.

Patient X-rays in the pediatric critical-care unit are needed quickly. In the past, physicians, nurses, or physiotherapists who needed X-ray access would have to physically fetch the X-ray to view it by the patient's bedside. In a project spearheaded by the hospital's information systems manager, Gordon Tait, health-care specialists now conveniently access digital images from existing bedside computers.

Tait discovered an existing freeware program over the Internet. Originally developed for biological use, the program allows application of filters to adjust image viewing options. High-resolution images are converted to low-resolution files, then transmitted over the hospital's standard network. Health-care specialists, even parents, can conveniently view the child's X-ray almost immediately after development.

A formal system evaluation is now underway comparing the output from these digitized X-rays to the original X-rays. The hospital is also experimenting with several uses of

Web browsers over its internal network. Online medical manuals are currently accessible to assist resident physicians. Lab results that measure patient pressure points in the heart are recorded graphically and exported to a GIF file. This graphic, along with text data, is then added to the HTML-based patient file.

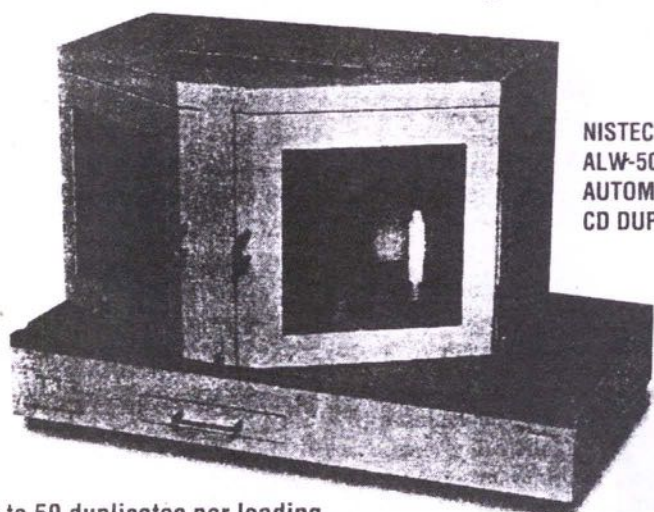
Automated urban development

Metro Toronto's own city of Mississauga set new standards for productivity and information access as it took home an award in the government and public-institutions category.

Formerly a hodge-podge of manual and semi-computerized procedures, planning and approvals have been given a major facelift. Thanks to Max (Mississauga Approvals eXpress), a client server-based application, municipal staff now have a centralized system for collecting and distributing planning information. The application generates more

continued on page 42

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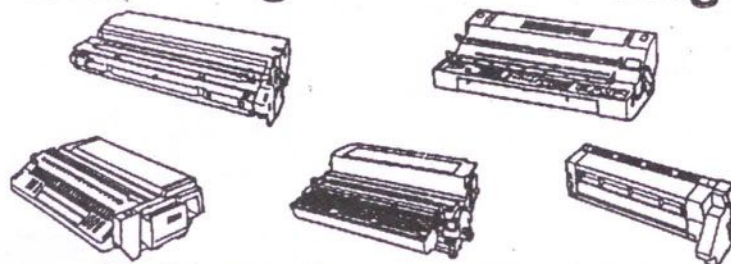
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Canadian organizations strut ...

continued from page 41

than 70 kinds of reports.

Over 300 municipal users were trained internally over a two-month period. The system's extensive online help documentation was all they needed to quickly get up and running on Max's graphical interface.

All development applications are tracked

electronically. Building permits, rezoning inquiries, condominium applications, committee of adjustment decisions, and digitized property maps are easily accessible through a GUI-based system.

Project leader John Alley outlined a number of new initiatives now under development. In the works are a building-inspectors' module to key in scheduling and field results, online fire-safety systems, and build-

ing-code analyses.

Public Internet access will eventually provide details on committee adjustment agendas, as well as a developers' fee for service site that will indicate the status of building permits.

More role models

Other organizations in CIPA's 1996 winners' circle include: Firstline Trust, for its speedy mortgage-application system; the

University of Alberta Library, for its innovative Internet-based ordering and delivery system; New Brunswick Telephone, for its 7-day, 24-hour interactive voice-response ordering program; and Air Canada, for its cost-cutting document-imaging project for cargo waybills.

With any luck, more Canadian institutions will catch this IT innovation fever and follow suit. ♦

Briefs ...

continued from page 34

Porn blockade

IStar is aiding Canadian parents' fight against online porn with free blocking software for the Internet. This software enables parents to restrict Internet access to certain times of the day, limit the total time spent online, and block access to specific resources and sites. For more information, call iStar at 1-888-464-7827 or visit their Web site at <http://www.istar.ca/> for more details.

Online accommodations

RoomsPlus Travel Guide proudly announces the completion of their new online accommodation listing at <http://www.roomsplus.com/>

The site provides listings for over 95 per cent of the hotels, motels, bed & breakfast operations, and campgrounds throughout Canada and the United States. It also includes over 34,000 golf-course listings. Phone (705) 942-9765 for additional information.

Best Software of Comdex

QuickDraw 3D for both Mac and Windows received "Best Software of Comdex Award" at the Fall Comdex in Las Vegas. Version 1.5 of QuickDraw offers extensible 3-D architecture for 32-bit Windows and Mac OS. Check out <http://quickdraw3d.apple.com/> for more details.

Dream shopping?

If you are tired after all of your Christmas shopping, why not shop online? Time Warner recently launched DreamShop—an interactive, upscale shopping site at <http://www.dreamshop.com/>

DreamShop offers a wide range of enhanced features, such as online ordering, cross-merchant shopping, and extensive search functionality. Call DreamShop at (212) 522-7983. ♦

Big Brother watches us all

continued from page 25

phone or even one of those fancy cordless models, you should know that any 13-year-old kid with a \$200 scanner from Radio Shack (and a bit of patience) can listen in on your phone call.

Thinking about sending e-mail? Think again. Hackers can read any e-mail message they want. Also, don't forget that the courts have decided that your employer owns your work e-mail accounts and can snoop in your files without telling you.

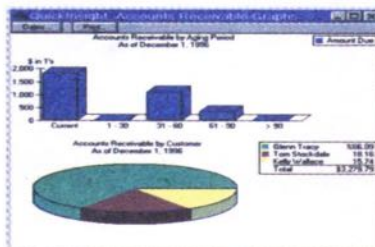
Anyway, who needs privacy? You only have to worry if you're doing something wrong, right? That's the argument in Los Angeles where police officials are openly talking about fingerprinting everyone who has a California driver's license and keeping this information on file permanently. Now, we all know the record of trustworthiness of the LA police department.

So relax, Big Brother isn't just watching you. He's watching all of us. ♦

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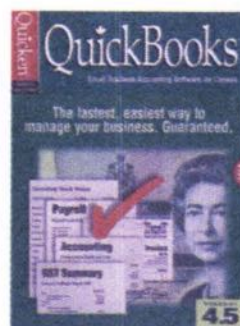
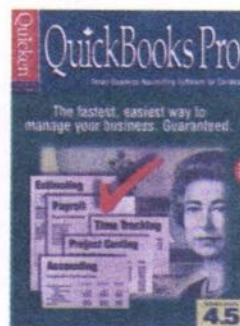
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Not all CD-ROM storybooks are created equal

•• By CARYN MLADEN ••

S hopping for kids? They loved the *Toy Story* CD-ROM so much, maybe they'll love another one of those colourful disks you see on the shelf. What do we have here? Two CD-ROMs from Corel, a Canadian corporation. Let's see how they stack up.

Something fishy

The Bungalo Boys: The Big Fish Wish follows Shorty and Carlotta as they go fishin' for a big, mean fish named Mighty Millie—who might not be so mean after all.

The drawings are done in the big, overdone style of traditional animation. The characters are down-home friendly and the text and navigation are easy to understand. It's a pleasant CD, with a few options—including drawing and colouring with the Paint program, and recording and playing back sounds with the Record option.

The kids can actively fish, or they can just

listen to one of the five stories as it is read to them. The overall effect is comfortable and amusing. It doesn't pack the wallop of some of the Hollywood-based CD-ROMs, but it's not supposed to. The point is to provide non-violent entertainment for children. I know many people will think that fishing is intrinsically violent—at least for the fish—but, rest assured, no fish in this CD will ever get fried.

Bungalo Boys is a series of four books by Frank B. Edwards and John Bianchi, and *The Big Fish Wish* is the first CD-ROM from Bungalo Books. Aimed at kids aged 4 to 10, I find it unlikely that the older kids in this group will find it compelling enough to play twice, so you may want to stop at 8. If you want something safe, gentle, optionally creative, and countrified, *The Big Fish Wish* is for you.

G'night, Knight

Nikolai in Time: In the Time of the Knights is the third in the Nikolai series from Corel and another, *In the Time of the Pharaohs*, is coming soon. The colours are

bright and the program is easy to install, but I found the overall experience frustrating.

The kids in the story are made to appear relatively human instead of cartoonish and this makes their excessively childish voices even more annoying. The drawings are lush and contain all the typical medieval-time attributes—swords, shields, armour, castles—but they are static. Press on a character and it does a little something that does nothing to advance the story or teach your child anything.

There are three stories that you can read beginning to end or you can explore around. The user can't quickly skip ahead or escape from an area they find uninteresting, however, without closing down completely.

The most frustrating attribute is the lack of interaction available for a creative child. The only part in which a child can actively participate is making music with the minstrels. Otherwise, this is a storybook, pure and simple.

Unfortunately, the stories are not interesting enough to keep a child's attention very

long. Modern children think and learn differently than did we. If they are using a computer, they want to interact by pressing buttons and choosing activities every few seconds. They can't do that with *Nikolai*, so they end up bored.

Aimed at children 4 to 10, there is no way a child over 6 will find this interesting, unless they have never used a CD-ROM before. ♦



The Bungalo Boys: The Big Fish Wish, by John Bianchi of Bungalo Books, from AMTEX Software Corporation, distributed by Corel Corporation. Win95 (only) CD-ROM. SRP \$29.95.

Nikolai in Time: In the Time of the Knights, by Isabel and Uno Hoffman, for Corel Corporation CD Home. Mac/Win 3.1/Win95 CD-ROM. SRP \$29.95.

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Children's software earns top marks

•• By SANDRA MINGAIL ••

Scan the shelves of your local software retailer. Slickly packaged titles scream for attention. It's no easy task to weed winners from losers. Thanks to the computer-savvy folks associated with the Software Publisher's Association, however, software's best are recognized at a once-a-year awards ceremony equivalent to the movie industry's Oscars.

Finalists from the association's 11th annual Codie Awards survived the judges' scrutiny. The team of evaluators represented a cross-section of computer magazine journalists, principals, teachers, home-schooling experts, librarians, and television producers.

A cut above the rest

A.D.A.M. Software Inc. stole the show, placing in the finalist position in four major categories: Best Curriculum-Based Education Program, Best Educational Program, Best Education Program for Middle School, and Best Education Program for Secondary and Post-Secondary School.

The A.D.A.M. CD is a comprehensive title that reveals secrets of the human anatomy. Students examine body systems and structures, view organs in 3-D from different angles, observe cross-sections and radiologies, or dissect 1,000 layers of illustrations of the human anatomy. Both school and student

editions are available.

Longtime educational-software publisher MECC—now a division of The Learning Company—scored well in both consumer and educational sections. The classic historical simulation Oregon Trail II was among the top five winners for Best Adventure and Role-Playing Software.

A newer title for MECC, jointly developed with textbook publisher Houghton Mifflin, is Mathkeys Unlocking Geometry, Vol. 1. Abstract math concepts are deftly transformed into concrete activities as players learn that mathematics really does have applications in everyday life. Mathkeys was awarded a finalist position for Best Curriculum-Based Program.

Learning assists

Don Johnson Incorporated masterminded a program entitled Blocks in Motion. Developed by a team of Swiss teachers and engineers, this award-winning title presents sets of on-screen manipulatives. Children use shapes and colours to construct pictures, then animate their creations. Since there is no mouse dragging required, the program is a boon for those with small-motor challenges. Spatial perception, gravity, cause and effect and problem-solving explorations keep young minds involved.

Longtime software guru Sunburst Communications scored top marks for its A to Zap! title. Onscreen activities for every letter

of the alphabet help young children build letter and simple word recognition. Animated characters escort youngsters through the program and provide assistance when needed.

Theatrix Interactive earned two finalist places in the early elementary category. Bumptz Science Carnival introduces hilarious Bumptz characters within an amusement-park setting. Over 200 puzzles, 12 animated science movies, and 19 experiments challenge youngsters to explore scientific concepts dealing with light, buoyancy, gravity and magnetism.

The second winning Theatrix title, Snootz Math Trek, presents math strategy games as young players help cartoon astronauts from Planet Snoot repair their broken spaceship.

Junior-high accolades

Hats off to the multimedia artisans at Videodiscovery Inc. for their Science Sleuths Series. Students land smack-dab in the middle of a science lab with a tough assignment—solve the mysteries of the exploding lawnmower and the blob. Junior sleuths manipulate a series of interactive on-screen science tools, consult graphs to analyze data, and browse the Sleuth Database.

The internationally renowned Julliard Music school for music, dance, and drama, in cooperation with Theatrix Interactive, received finalist ratings in the Middle School category for its Julliard Music Adventure. This two-in-one title presents players with a

musical-adventure game set, as well as a suite of musical composition tools to create personal scores. Children discover rhythm, melody, and orchestration as they explore elements of jazz, latin, classical, and pop music.

High school and beyond

Good ol' Shakespeare soared to a finalist position with IVI Publishing's Discovering Shakespeare. Myths, legends, and mysteries of William's 16th century life are captured on compact disk. Added to that are interviews with British and American Shakespearean actors, synopses of 37 plays, and video footage of historical English landmarks.

The Princeton Review's Inside the SAT was another winner in this category. This test-preparation software helps students survive the SAT experience through onscreen lessons, in-depth comments on answer choices, and animation designed to reinforce learning. The associated Internet Web site offers online test discussion areas and frequently asked questions for test-takers.

Other Codie Award winners included well respected software publishers such as Edmark, for its Thinking Things Collection, and Dorling Kindersely, for its Cartopedia map-making title. Microsoft's 3D Movie Maker was voted finalist in both Best Home Creativity Software Program and Best New Use of the Computer category. ♦

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With Deadly Games, patience is a virtue

• By WILLIAM A. WOOD •

With the seemingly unstoppable rise of real-time tactical action games (the prime examples being Blizzard's *Warcraft II: Tides of Darkness* and Westwood's *Command & Conquer*), is there room for an "old-fashioned," turn-based type of game? Yes, and no.

Jagged Alliance: Deadly Games is the sequel to *Jagged Alliance*, a moderate hit from 1995. Both games involve assembling a team of mercenaries with varied abilities and then running them through tactical, "squad-level" scenarios. Successful missions generate cash to pay for more skilled mercs or better weapons, while unsuccessful ventures earn you nothing but scars—if they don't cost you everything.

The play runs in turns, with each merc having a certain number of action points that are spent running, shooting, setting explosives, and so on. Once one side has moved all its soldiers, the other side gets its turn. The game alternates back and forth until victory conditions have been met or the fixed number of turns runs out.

There is a limited amount of crossover insofar as your mercs can "save" action points and use them to interrupt the other player (useful for setting ambushes). This is a far cry, however, from the wild and woolly real-time games, where things happen all over the map, and there's no time to stop and ponder.

Sitting duck

As such, *Deadly Games* may appeal to players who prefer to strategize a bit more, who are less hooked on the adrenaline rush of having to react and control a squad of soldiers while actually under fire. To be fair, there is a different, but no less anxious feeling when your merc runs out of action points in the middle of an open field, and you have to sit there and helplessly watch the enemy take shot after shot at him.

Strategizing, alas, is the element of *Jagged*

Alliance that is most missing from *Deadly Games*. The former had an overarching goal, and the various firefights were small pieces of a larger puzzle that led eventually to victory. *Deadly Games*, on the other hand, is little more than a random fight generator, albeit with extensive options and impressive scenario-editing capabilities.

What Sirtech appears to have concentrated on is the multiplayer angle. To this end there is a second CD-ROM copy of the game included, so that you can give it to a friend and fight each other by modem. Unfortunately, this second disk is multiplayer only, which means your friend can't practice,

so you really have to give up your copy once you're familiar with it—and then you can't play it alone.

Unfortunately for Sirtech, multiplayer play is where the turn-based system starts to drag. Perhaps I've been spoiled playing *Command & Conquer* by modem, where both players work simultaneously, but waiting for your friend to finish moving his or her mercs seems to take forever, especially in the beginning of the scenario when your teams are generally

far apart. You can set a time limit on the turns, but then players get cut off in mid-turn, and it just gets ugly.

I know you are, but what am I?

Of course, there's an excellent "taunt" feature—every merc has his or her own handful of nasty phrases they'll yell on command. Maybe that's how you're supposed to pass the time.

I enjoyed *Deadly Games* quite a bit (in single-player mode, that is), but I confess that it wore itself out pretty quickly.

If you're patient, and you're not a control freak (or if you like helpless tension), you will probably enjoy the interesting mix of characters, who all have distinct personalities and fun vocal reactions. If *Deadly Games* succeeds anywhere, it is in straddling the line between action game and role-playing game. Your mercs are not faceless soldiers, dying like flies; they're unique men and women, dying like flies.

If only they'd been given something more substantial to do. ♦

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TWO OFFERINGS FROM MICROSOFT

• By PETER O. WALPOLE •

1 If you know a *Flight Simulator* for DOS nut (you perhaps) who wants to upgrade, then I've got just the thing. Now you can have the enhanced landscapes for Hawaii, Japan, and the Caribbean, all on one CD.

The disk comes with a thin manual with instructions for loading the program as well as a brief cross country sightseeing trip for each locale. Take the trip, it's worth it.

You also get a restricted collection of maps for each area, as well as a few airport charts and info on runway lengths and so on. I had great fun circling Mt. Fuji in the early morning, dipping into the great caldera of Hawaii's active Kilauea, and passing between the mountain peaks of Nevis in the Caribbean.

The landscapes are not exactly photorealistic. Rather you have a very cleverly

crafted "tiled" replication of the Earth's surface. The colors of Hawaii's Big Island are as I remember them, with well rendered lava flows and mountain sides. The beaches of the Turks islands are gleaming white. Tokyo's office buildings and towers rise up towards you if you fly low. For *FS* pilots, this disk is a must-have. The only danger is you may want to subscribe to a set of Jeppesen charts to plan trips and check the accuracy of Microsoft's simulated world.



2 I claim to be one of the first Canadians to fly a US-registered Cessna through London's Tower Bridge. I also circled Big Ben and Buckingham Palace, flew from Buttonville to Toronto City Centre (the Island airport), and circled the CN tower.

I did it all with *Flight Simulator for Windows 95*. The CD-ROM program is big-

ger, better, super. From the first set-up you are immersed in multimedia simulation, with voice, music, sound effects, and visual excellence.

There are six planes to fly: a very modern Boeing 737-400 and an aerobatic Extra 300S have been added to the usual offerings. There are also more challenging exercises, lessons, and mystery flights to be executed. The overall level of scenery, particularly in a number of selected locations, is brilliant. The total effect is even more realistic than in previous *FS* versions.

Because this program runs under Windows 95, set-up is easy. Generally, your hardware will be recognized without any help. My joystick needed to be "hand" configured to perform fully. The program is optimized for the MS Sidewinder 3D Pro—I now have an excuse to get one! Documentation is brief, but you do get online help.

Flying an on-screen simulation can be more frustrating than the real thing, but the program has some interesting lessons and advice to get you started. As in real flying, the complexity of the simulation can be increased, as your skills develop. For sheer fun flying, try the challenges, or go sightseeing.

You'll be amazed at the scenery detail. The

CN tower looms over the Island airport, and is visible from Pearson International. The landscape and Hoover Dam near Las Vegas are almost photorealistic.

The simulation has hours of discovery built in, what with planes, time, weather, and the whole world in which to fly. When real flying is cancelled, *FS for Windows 95* offers loads of fun, as well as some very realistic instrument simulation.

If it's time to upgrade from *FS for DOS* (and that's a great program), here's a wonderful excuse. As a big plus, your DOS scenery can be used with this new version.

Peter Walpole (pwalpole@barint.on.ca) flies and writes in central Ontario. ♦



Flight Simulator for Windows 95, from Microsoft. CD-ROM. List price: \$79.95.
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Power Learning

Sandra Mingail

It's a typical Sunday evening in the not-too-distant future. Your family room buzzes with activity. Little Susie cuddles with her favourite stuffed bear and listens while it offers advice on her personal problems. Teenage Dan constructs a virtual graphic replica of himself, then sends it online to mingle in a virtual neighbourhood. Meanwhile, adults in the household sit in front of the large screen computer monitor and explain the week's schedule to an army of domestic digital devices.

Sound like a script from a science-fiction film? Not at all. In fact, those ingenious folks down at Massachusetts Institute of Technology are devoting months of grey-cell energy and sponsors' big bucks to producing working examples of this very scenario.

The MIT Media Lab is a research facility dedicated to research and experimentation of the human/computer interface. Numerous research groups and consortiums—supported by more than 100 corporate sponsors and several US government agencies—study just how we will interact with computers and telecommunication systems.

The list of Media Lab sponsors reads like a who's who from the Fortune 500. Big-time IT players like IBM, Microsoft, Sun Microsystems, Bell Communications, and Intel rub shoulders with the likes of the

Central Intelligence Agency, Levi Strauss, The LEGO Group, and Nike Inc.

Give me the signal

One of the centre's newest research arms, the Gesture and Narrative Language group, focuses on instilling psychological and social traits in toys and virtual agents.

One project, for instance, incorporates the use of animated human figures. Since non-verbal signs form an integral part of human communication, these animated agents are programmed to produce not just speech but associated hand gestures, voice intonations, and facial movements—much like a puppet show, but totally machine-driven. Next time you have an intimate chat with someone, better make sure that's a humanoid you're speaking to!

Many online computer junkies venture into MUDs and MOOs—those ubiquitous multi-user environments where no one is who they seem. To date, text has been the major communication method, although this is rapidly evolving into more graphical forms, such as avatars—graphical representations of a user.

MIT researchers utilize golf balls with painted faces to represent online users. Each golf ball is programmed with sliders that represent three physical responses to social situations—agreement, social mood, and awareness of another avatar's physical presence. Imagine the possibilities—non-verbal communication would then be possible over networked societies.

Huggable stories

Remember the old pull-string doll Chatty Cathy? Pull her string and she would dutifully yammer on about this or that. Communication is a two-way street, however, and from that viewpoint, Chatty Cathy failed abysmally.

MIT researchers have constructed prototype stuffed animals—more scientifically, storytelling agents—capable of “listening” to human personal stories and “responding” with inspirational stories.

Referred to as SAGE (storytelling agent generation environment), the storytelling system is camouflaged in the body of a stuffed animal. This allows children to have warm-and-fuzzy feelings towards a sophisticated set of electronic circuits. When a child utters a story to the SAGE, its lexical reference system searches its indexed database for a match between linguistic structure of the story and an inspirational response.

All responses are based on value systems contained in the Ten commandments. What results is a pseudo-counselling session where the listener (in this case, the child) is left to draw a connection between her story and the SAGE's interpretation.

Never-ending stories?

Give a child a doll and some everyday objects. In no time at all, make-believe play blossoms into intricate storylines. One moment the kitchen chair is a rocket launch pad, the next it's a magical throne.

Researchers at MIT are intent on capturing a child's spontaneous oral storytelling that emerges with play. A child holds a toy up to the computer screen. The computer asks for its name and then asks the child to share stories about it. The next time the toy is held up for the computer to “see,” the machine recognizes the toy and encourages the child to build upon the earlier story. The physical object becomes linked to specific digital information.

The benefit of this project? Research material claims children will be more apt to share stories with family and friends and to edit and revise creative material. Parents gain digital memories of their child's development. Yes, well...

If the people at MIT Media Lab get their way, embedded digital technology will exist in everything from our shoes to our toasters. In fact, our own body will be used as a Personal Area Network to enable communication between inanimate objects. But hey, that's another story...

Sandra Mingail is a computer educator and consultant. Contact her at mingail@direct.com

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Internet speed-freak options for the near future

I don't know about you, but when I'm online, either communicating with the office or researching on the Net, I spend a fair bit of time muttering "hurry up!" to my modem. In spite of technological advances, content seems to expand faster

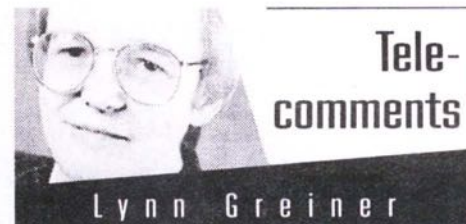
than the capacity of the transmission media.

Three new developments promise to alleviate the problem. ADSL has been talked about for some months, but should become real early next year; WAVE (Internet via cable modem) has now launched nation-wide; and 56 Kbps modems are being announced by all

sorts of manufacturers, and will ship in early 1997. Let's take a brief look at each of them.

ADSL (asymmetrical digital subscriber line) is a high-speed technology that operates over normal telephone lines. As its name suggests, it gives you different speeds upstream (from you to the server) and downstream (from the

server to you). Initial releases will offer over 2 Mbps downstream, and 1 Mbps upstream, while still permitting simultaneous ordinary voice calls on the same line—and second generation ADSL will more than triple the downstream speed.



Tele-
comments

Lynn Greiner

But, there's a catch—ADSL is distance-sensitive. The farther you are from the telephone company's central office (the switching centre), the slower the connection will be. Also, the telephone companies will have to put additional equipment in their central offices to handle ADSL.

The various flavours of 56 Kbps modems, on the other hand, will operate over standard lines, talking to other 56 Kbps equipment at the rated speed, or dropping down to 28.8 Kbps or 33.6 Kbps for conventional modem connections. This technology, too, is asymmetrical, with upstream traffic at 28.8 Kbps, and downstream at 56 Kbps.

The catch here is, the system you're communicating with must not only have a 56 Kbps "server" modem, it must also have a pure digital connection to the phone system.

USRobotics, one of the first to announce 56 Kbps modems, explains the reasons thusly: most telephone systems have slowly been upgraded from analogue to digital over the years, with the only analogue component left being the line between your home and the central office, yet today's modems still treat the entire connection as analogue, converting your PC's digital signals to analogue for transmission, and converting the analogue signals from the phone system back to digital at the receiving end. The signal conversion from analogue to digital, for specific technical reasons, limits transmission speeds to a maximum of 33.6 Kbps (digital to analogue is not a problem).

USRobotics's x2 technology gets around the limit by keeping the downstream data in digital form. Upstream data must still be converted at each end, so it's tied to the slower speed.

Get cable?

The third high-speed medium is cable modem. Five cable television companies across Canada have now announced the service, christened WAVE: Rogers Cablesystems (the pioneer, who partnered with the other

continued on page 56

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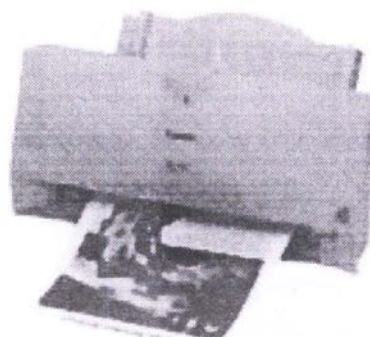
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The year Win95 stabilizes?



**White's
Bytes**

Myles White

W have a lot to look forward to in 1997. To begin with, you can expect to see new 32-bit revisions of just about every software application you've ever heard of for Windows 95 and Windows NT. In fact, some of them may have arrived just before this issue hits the streets, including brand new versions of Microsoft Office and IBM/Lotus SmartSuite, as well as the CorelDraw 7 suite.

Connectivity with the Internet will be highly featured in all new products. There will be links to updated help files, special Web pages with additional components and enhancements (such as more clip art or

fonts), and new file-management interfaces that will make it difficult for a casual observer to determine whether you're connected to the Net or searching your local hard drive. Net access is becoming a necessity.

We can look forward to new versions of both Microsoft Internet Explorer (which will also change the Win95/NT interface again) and Netscape Navigator—in fact, the speed with which both companies are trying to outdo each other won't leave me surprised if we see more than one revision of each before the year—or the war—ends.

Stabilizers on

Win95 products will be more stable as a group. Most of the product releases in early to mid-1996 tended to be flaky—which the developers blamed on the environment in which they were forced to work. Most companies didn't have the final shipping code for Windows 95 until you and I saw it and were working from beta (i.e., test) versions of the software developer kits, too.

By this round, everyone should be working from the same page and the learning curve should be behind them as well.

One of the more intriguing software questions for 1997 will be whether Microsoft will make the latest revisions of Windows 95 available to consumers. Since the program was first released in August, 1995, there have been two updates that have only been sent

to manufacturers of new systems. Dubbed OSR1 (OEM Service Release 1) and OSR2, these versions have not only fixed some awkward (i.e., flawed) code in the commercial release, but they've added enhancements as well, including a new file system (FAT32) in OSR2 designed to make more efficient use of large hard disks, and saving literally hundreds of megabytes of space on drives nearing 2 GB in size.

Portions of OSR1 appear in what Microsoft calls Service Pack 1 (available from both its Web site—<http://www.microsoft.com/> and free for downloading—and by disk, at a price), but not all of the fixes are there.

As of the date I'm writing this and despite repeated requests for information on my part, the company hasn't revealed any plans for public distribution of the OSR2 components—although it has indicated that a new commercial release of Windows 95 (Win98?) may be coming at the end of 1997 or early in 1998.

If I were handing out "darts and laurels" this year, Microsoft would definitely be dodging the pointy end over this one.

Picking up speed

On the hardware side, we can expect more power, more speed, and a very interesting market. Intel is due to release the P55C (or if you prefer, the Pentium MMX) processor this month. Still optimized for a mix of 16- and

32-bit code, this 233 MHz version of the Pentium will directly support software emulation of audio (with Dolby), video, 3-D acceleration, telecommunications and animation. It will also come at a price, but should drive the cost of existing Pentium and Pentium Pro processors down as a result.

Later in the year, we'll see the first P7 (currently code-named Merced) units sporting a new, 64-bit version of Windows NT.

Cyrix and AMD are also poised to offer new products. Cyrix is demonstrating the "M2" with 64 KB internal cache, some Pentium Pro data-handling techniques, MMX extensions, and the ability to run on a fast 75 MHz system bus—all neatly packaged to fit existing Pentium processor sockets.

AMD's proposed K6 is similar, albeit with 32 KB cache and limited to 66 MHz system bus speeds. Neither is shipping yet.

The PowerPC community has something to look forward to as well. Although Motorola has now pushed its 603e processor to 240 MHz (available in its StarMax 3000/240 with Mac OS), a California startup company, Exponential Technologies (<http://www.exp.com/>), has shown samples of 466, 533, and 566 MHz versions of a PowerPC chip they say will be available in quantity this spring.

Yeah, but what about the Network Computer/Internet Toaster? What about it? Let's talk again when there are several in the market and someone actually buys one. ♦

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The science of secrecy

• • By DAVID ROSEN • •

Right now, someone could be reading your e-mail, business plan, tax files, or even (gasp) your electronic love letters! Is the snooper a hacker or some other shadowy figure? Maybe, but it's far more likely to be your work mates, your spouse, or even a nosey baby-sitter. How can you keep your personal stuff personal in this digital age? Encryption, of course!

The person usually credited with first using simple encryption was Julius Caesar. The emperor had to send messages to his trusted generals, family, and acquaintances, but he didn't trust his messengers. He therefore used a very simple cipher system (by our standards anyway), replacing every "A" in the original document with a "D," every "B" with an "E," and so on through the alphabet. Only someone who knew about this "shift by three" code could decipher his messages.

Of course, you don't have to be a Roman emperor to use encryption: anybody who values his or her privacy should consider using it. Naturally, Caesar's simplistic "shift by three" system can be broken easily and code-

makers ("cryptologists" in the lingo) wage a never-ending battle with code-breakers. Today, encryption is a complex world of cat and mouse, of mathematicians working with spies and enough intrigue to fill a Tom Clancy novel.

The eyes can't have it

What, exactly, is encryption? Good question. Encryption is the process by which your original information is converted into unreadable form to safeguard it from prying eyes.

Suppose, for a moment, your original message—your business plan, for example—is called a "plaintext." Obviously, this plaintext message can be read by anyone who has physical possession of it and the application software to read it. Getting physical possession of a document may not be terribly difficult—many a product plan has been purloined by industrial spies posing as office cleaners. A mop-toting infiltrator can quickly duplicate your business plan onto a diskette and you won't even know it's been copied.

This kind of disaster can usually be avoided by adding a password lock to your computer. Once this software is installed, every time

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you turn on your computer (or awaken it from a sleep), it asks you for a password.

Programs such as *Norton's DiskLock* (approximately \$120) or Kent Marsh's *NightWatch* (approximately \$110) will do a good job at this. Other password lock programs, however, can be a pretty weak defense, since someone booting up with a system-disk floppy can circumvent the program.

Gimme the keys

Encrypting (or scrambling) your information is the only real way to safeguard it from a determined thief. The essence of encryption involves using a password or electronic "key" to translate your plaintext message into an unreadable file, called a "ciphertext."

Commercial programs such as *RSA Secure* (from RSA Data

Security in Redwood City, California) do a good job of encryption. *RSA Secure* is available for both Windows-based computers and Macs for approximately \$150. Other programs in the same category include *Norton Encrypt* (part of Symantec's *Norton Utilities*) and Kent Marsh's *Folder Bolt. File Guard* (\$200) from ASD software is also an excellent choice.

With your business plan thus encrypted, your office cleaners wouldn't be able to make any sense of it even if they successfully copied the file.

During the encryption process there are two separate functions going on. The first, encryption, is the scrambling of your file. The second, decryption, is the reverse process—that is, using the password to translate the

unreadable file back into its readable form.

Insecurities

The first problem you might encounter is forgetting the password to your file. This can be overcome by thinking about a common word or phrase and then modifying it. For example, your dog's name, "Spot," may be easy to guess, but if you add a few characters from the top of your keyboard, making "@Spot@#", your password becomes much safer. By the way, good passwords should be at least eight characters in length.

The second problem is letting your intended recipient know the password. If you're really paranoid, you might suspect your mail is being pilfered and your phone bugged. What to do? Turn to PGP (an acronym for "pretty good privacy"), a program written by Philip Zimmermann and originally distributed across the Internet. Now also available commercially from Phoenix-based ViaCrypt, PGP lets you send out an encrypted document plus the decryption key.

The trick is that the key is also encrypted in a previously co-ordinated way, so that only the recipient can open the document. Zimmermann's actions drew the attention of the US government, which takes encryption very seriously. Since the government views programs of this sort as "munitions," it charged Zimmermann with illegally exporting military software without the proper licenses. After years of legal wrangling, the US government, finally decided to drop all charges against him.

So, all is safe in the world again—or is it? ♦

Related encryption newsgroups

Fire up your newsgroup reader and learn all about the wonderful world of encryption. Here are a few places to start:

- **misc.legal.computing** carries many interesting discussions on the laws surrounding cryptographic export and what people think about those laws.
- **sci.crypt** concerns discussions about the science of encryption.
- **alt.security.pgp** is a newsgroup geared to uses of Zimmermann's PGP (Pretty Good Privacy) encryption program.
- **alt.security.ripen** contains information about the encryption program RIPEM (the most commonly used program inside the United States, but not available for shipment outside the United States).

What is the National Security Agency?

The NSA is the official communications security body of the US government. Within the intelligence community, they're known as the "spooks." The organization was given its charter by President Truman in the early 1950s and continues research in cryptology today.

For reasons of national security, almost all information about the NSA is classified or secret. We do know, however, that the NSA is the largest employer of mathematicians and the

largest purchaser of computer hardware in the world (what, you thought the government was spending millions of dollars to predict the weather?).

Just about everyone in the industry agrees that the NSA probably possesses cryptographic expertise many years ahead of the public's knowledge. This means that the NSA can likely break most—if not all—of the commercial systems used today. Have a nice day.

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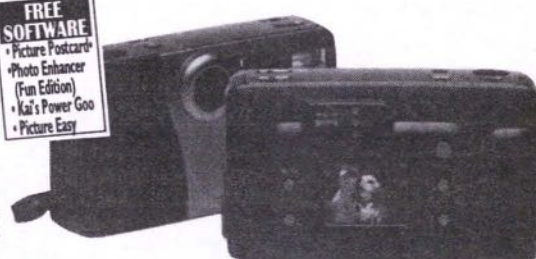
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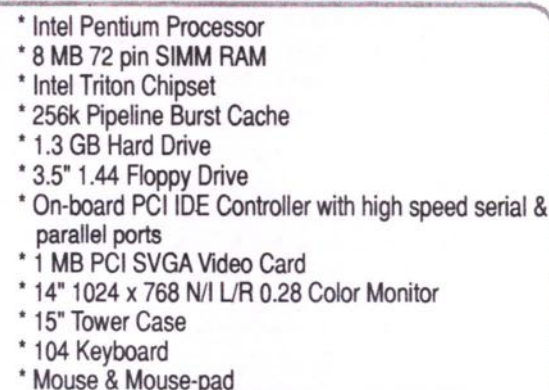
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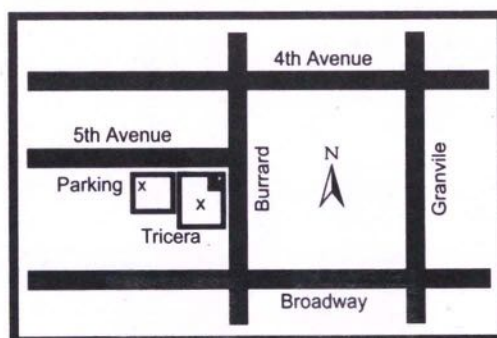
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Where do we go from here?

When Purolator Courier Ltd. announced recently that it was searching for a new advertising agency, it was signalling a radical shift for the industry. Why? Because Purolator is using its World Wide Web site in the search for a new shop, which means the successful bidder is going to have to know how to deliver the goods via the Net.

• • By ALAN THWAITS • •

Purolator's reasons for going the Web route are varied. Executives at the national courier company say that, as a technology company, they're naturally looking for an agency that understands high-end tools. The bottom line, however, is efficiency—Purolator can field the search process more productively via a page on its site than by going the traditional route of a paper-based procedure.

Not just courier companies, but such diverse players as the Canadian government, some school boards, and the FTD florist chain of stores are using the Internet to market, inform, and educate. Connectivity is a must for the 1990s and beyond.

The new "knowledge-based economy," according to a recent report by Statistics Canada, will require a solid set of computer-related skills for anyone working and learning in the last years of the 20th century. The report puts out a clear warning that those unwilling to learn to use the computer and its related technologies "face the possibility of becoming

further marginalized as other Canadians use computers to develop new skills."

It's magic!

So, it's probably a good time to do a little "future visioning" to see what present and future trends are. Details will, of course, be subject to change, as the "technology warp" we're living in is enough to make us all believers in science-fiction author Arthur C. Clarke's famous dictum that "Any sufficiently advanced technology is indistinguishable from magic."

What are the trends we'll have to pay attention to if we want to make a living in the new wired world?

First, there's the move from "marketplace" to "marketspace." Just as the nature of employment has changed radically in the 1990s, so has its context.

Our immediate forebears could look forward to working at one or two companies (or institutions) for all of their working lives, probably with a reasonable benefits package and salaries or wages that incremented at a steady rate. Now, we're looking at what some academics are calling "a return to a hunter/gatherer economy."

Adherents of this model see the economy

tilting towards the self-employed cyberpreneur, who combines a mastery of computing technologies with the Internet's time-shifting and distance-negating abilities to market everywhere and all the time.

You say your business is building and selling picture frames out of your home office in Winnipeg? Well, with an interactive Web site, a sound business plan, and *skills to match the technologies*, there's no reason why you can't support clients in Madagascar or Des Moines, and do your banking in the Cayman Islands. No longer do companies, whatever their size, need to "farm" a particular territory to be successful.

The second trend is the reality of distributed computing and cross-platform options. When you think about it, the Net (and its siblings, the intranet and the "extranet") are nothing more than distributed databases. With a reasonably powerful desktop system and easily accessed software tools, it's no problem to retrieve or broadcast data, view images, or interact with other individuals in real time around the world. Most importantly, *to do it without regard to platform specifics!*

Our Winnipeg-based picture framer may use a Mac because that's his machine of choice, but he doesn't need to know—in fact, couldn't care less—that his clients in Madagascar and Des Moines are running Windows and OS/2, respectively, on their PCs. Or that his Caribbean-based bank accounts are on a UNIX system.

Put me in the box

In fact, if Oracle, Sun Microsystems, and others promoting the so-called "network computer" (AKA the "Internet box") are right, we may be close to the end of operating systems as we know them. Or, if Java—a programming language that can be accessed and used by any operating system—becomes



Purolator <http://www.purolator.com/>
StatsCan <http://www.statcan.ca/>

the standard, the Microsoft-dominated computing world may be over.

Among those betting on this are Michael Cowpland, who's basing his new *Corel/WordPerfect* applications on Java technology, and IBM, whose OS/2 Warp 4 operating system can develop and run Java applets on your desktop, rather than only in connection with your Internet browser.

The third critical trend is not what you might expect. It's that the rate of technological change will be so vast and wide-reaching, and will affect so many of our established institutions, systems, and beliefs, that we'll see a reversal of values. The outcome of the chaotic change we're facing, suggests Anne Coulombe, president of Vancouver-based SciPlan Consulting, will be "a world where computers work for us, within the human framework, rather than the present situation, where we're adapting to the computing environment." In the brave new world of ubiquitous connectivity, we will once again put face-to-face communication at the forefront.

A brave new world? Without a doubt. If these three trends are anything to go by, everything we now know about work, learning, and leisure will change. Common sense says it's time to start getting ready.

Alan Thwaits is a freelance writer based in Mississauga, Ontario. He can be reached at praxcomm@idirect.com ♦

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online

The future of banking

• • By PAUL LIMA • •

There was a time when banks were open from 9 AM to 3 PM. If you had business to conduct outside "banker's hours," you were solidly out of luck. The times, evidently, are changing.

Banks are now keep longer branch hours, but you can conduct most banking transactions 24 hours a day, 7 days a week, without entering your branch.

Want to deposit checks, pay bills, or withdraw funds? Visit an automated banking machine (ABM). Don't want to leave the comfort of your home or office? Pick up the phone or turn on your personal computer and dial into your cyber-branch to do almost anything you'd do in person, except withdraw cash.

While most banks and major trust companies have had an Internet presence for a year or so, their Web sites were initially places you went for financial information only. Then, last year, Bayshore Trust issued an electronic wake up call.

That company was the first financial institution in Canada to offer actual transactions—personal loans—over the Internet. Consumers were able to apply for unsecured personal loans of up to \$15,000 via their home computer and Web connection.

Avalanche

Bayshore's move had a net effect on larger financial institutions. Almost immediately, TD

Bank said it would make secure transactions available on the Internet, and Royal Bank said it was giving the matter serious consideration.

Now all of Canada's banks and major trust companies are online interactively.

While David Foot (author of *Boom, Bust and Echo*) claims baby boomers will not jump on the online-banking bandwagon, Canada's financial institutions are ignoring the demographer's prognosis. Internet banking is poised for dramatic growth, according to Banking Technology Issues: 1996 International Survey from Datapro Information Services Group (DISG).

Responding to competitive pressures and consumer demand, banks around the world are shedding traditional distrust of new technologies and offering Internet-based banking services, says DISG.

While only 7 per cent of bank IT professionals surveyed in first quarter 1996 offered Internet-banking services, 36 percent planned to do so by 1997. By 1997, 59 per cent of respondents plan to implement PC-banking services, up from 19 per cent in 1996.

Of those surveyed, 54 per cent cited "customer requests" and "cost benefits" as the primary reasons for implementing online banking services.

You want it

Electronic banking offers consumers more convenience, says Chuck Hounsell, Canada Trust vice president of distribution develop-

ment. "Both the Internet and phone greatly improve convenience over branches alone. While the telephone is easy to access and easy to use, the Internet is proving to be the best tool for customers who have extended travel outside of North America."

Hounsell has heard from customers as far away as Monaco, Hong Kong, and Bangladesh who used Canada Trust's Internet account-information service. "As we move to provide full banking over the Internet, this convenience will improve."

While all of Canada's banks allow transactions on the Internet, they offer Canadians proprietary software and direct-connections to their computer systems.

"The banks want to encourage computer-based banking, but they're paranoid about security, about hooking (their) intranets to the outside," says a BC university computer-science professor, who preferred not to be named because of work he is doing in the industry.

Banks, credit-card companies, and computer companies, however, who stand to profit from electronic commerce, are stressing that e-commerce is secure. "I think Canadians can trust financial institutions to properly build and execute solutions that meet customer needs and are safe to use," says Hounsell.

Even so, as more consumers use technology to bank, and store more information on their computers, they will have to safeguard both information and access, says Hounsell.

Bayshore Trust

<http://www.bayshoretrust.com/>
Canada Trust
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<http://www.mtnlake.com/paradigm/>

Bigger picture

Security issues aside, the move to electronic banking is part of a much larger trend, says Phillip Lightstone, director of network services, Newstar Technologies Inc.

"Everything is wrapped up with the notion of the paperless office and hard currency-less society. Look at society's changing perceptions. We're seeing a move from charge cards to debit cards, but ten years ago the debit card would not have worked. People's wouldn't carry money around on a chip."

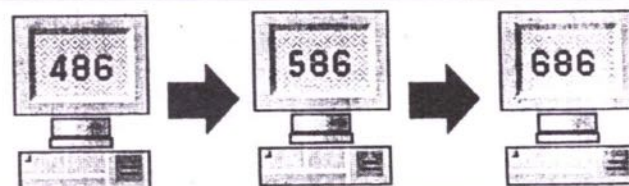
We're not moving to electronic commerce simply because we can, says Lightstone. "The cost of supporting paper money will be outweighed by the support of electronic money or e-commerce." Ironically, Lightstone says the main challenge is not a technology challenge but one of "changing consumer perceptions of the use of the technology."

Bank of Montreal's first mission in intro-








continued on page 56

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The future of banking...

continued from page 55

ducing mbanx was to "create a brand name, then identify what the brand is doing," says Lightstone. Although co-opting Bob Dylan's protest anthem, "The Times They Are A-Changin'," infuriated many potential mbanx customers, Lightstone claimed it was a "brilliant" marketing concept. "The Bank of

Montreal created the image of Coke without a product, creating a demand first."

Stay home

The Citizens Bank of Canada, on the other hand, is not concerned with creating a pop-music or pop-drink image first.

Expected to open early in 1997, it will have no tellers and no branches. Citizen Bank customers will do all their banking by tele-

phone, computer, television, or ABM. The bank will offer a full range of services including savings and chequing accounts, term deposits, mortgage lending, Registered Retirement Savings Plans, and bill payment.

The bank, owned by Vancouver City Savings Credit Union, expects to "change the face of banking in this country over time," says Linda Crompton, Citizens Bank of Canada president and CEO.

While banks are offering services by phone, Internet, and proprietary software they haven't given up on branches yet.

According to the DISG survey, banks plan significant investments to upgrade branch systems, including workstations, servers, printers, application software, and networking and telecommunications equipment.

Hounsell admits Canada Trust is "reducing some hours in some locations" due primarily to reductions in over the counter traffic.

"Telephone banking and PC banking, along with ABMs, are emerging as the preferred channel for routine transactions. New channels will not outright replace branches, but they will contribute to a change in role of branches."

He feels customers "are voting with their fingers to use more convenient alternate channels, reserving trips to the branches for more complicated transactions or financial advice."

With the advent of widespread Internet banking services, will there, in fact, still be a need for banks? It's an interesting question.

"There is a fundamental change taking place in the nature of financial services and indeed money. People and companies will increasingly bank online, not in the long term, but over the next few years. This creates an open, global competitive banking situation and I think the Canadian banks are in grave danger."

"I'm wondering, who will deliver the financial services supermarket? Will it be something called a bank or will it be Microsoft, AT&T, Sony or, as Citibank CEO Walter Wristen suggests, GE?" ponders Don Tapscott, the chair of Alliance for Converging Technologies. ♦

Internet speed-freak options

continued from page 48

companies to effect the rollout), Cablenet, Shaw, Videotron, and Western Co-Axial.

Depending on the modem type, users can expect rated speeds from 500 Kbps and up (30 Mbps is being tested), without occupying a telephone line. Instead, an Ethernet card in your computer is attached to a special modem, which is in turn hooked up to a cable-television outlet. The signals run over the same wires as the television signals, and as long as the computer is turned on and the software (nothing fancy—just a packet driver and a winsock such as Trumpet) is running, you're a node on the Internet.

This service is limited by the cable infrastructure—companies need to upgrade their systems to cope with two-way communication, so WAVE is not available in all areas. The WAVE Web page offers information on availability, plus links to each cable company's home page.

A recent study by the New York-based Jupiter Group suggests that, of these three technologies, 56 Kbps modems will achieve the greatest penetration among consumers, simply because of the higher cost and logistical challenges faced by ADSL and cable. It expects 56 Kbps modems to hold 50 per cent of the market by 1998, and over 65 per cent by the year 2000.

"Although there's still some hope for technologies such as ADSL and cable modems in the longer term," says Wen Liao, Jupiter's senior analyst for home technologies, "for now improvements in dial-up, in the form of 56 Kbps modems, will have to do—although this is still not the fat pipe of our dreams." ♦

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If you work or live with teenagers, you know they can be the most irritating and frustrating people in the world. When interested or motivated, however, they can also be very focused on excellence.



• • By PETER O. WALPOLE • •

I was thrilled to read that Tandem Computers, a major technology corporation, is supporting a UNESCO Antarctic expedition this summer (January to February). About 35 young people (ages 16 to 24) will explore the polar continent. I had planned to follow the trip and report back to our readers.

There's no need, however: Tandem has created a wonderful Web page we can all visit daily. Here you'll find updates, photos, progress reports, and news releases.

The page looks great. Give it a visit. Teachers and parents might want to involve their youngsters in this new medium with e-mail and research.

Surf over to <http://www.onestep.tandem.com/> and see for yourself. ♦



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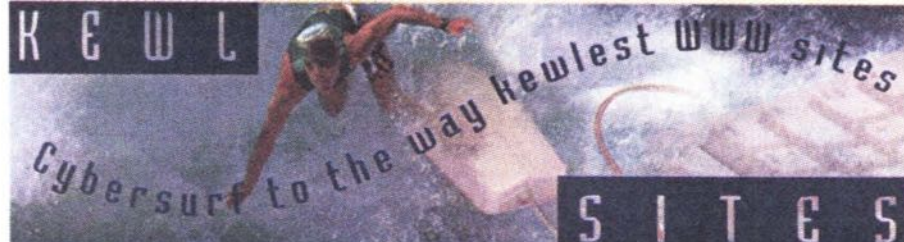
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<http://www.vins-france.com>

Here's information about an interesting Website that's fun and informative. Think of it as French wines 101. The "UltiNET" in on-line wine. The Wines of France now have their own Web site. Visitors to this virtual wine cellar can learn more about the Wines of France and add to their enjoyment. The bilingual site consists of five sections including Suggestions from our wine steward, The connoisseur's ABC, Why take a chance?

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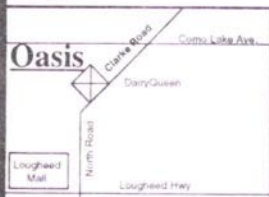
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Third mouse button = fifth wheel?



Q I'm wondering if the Logitech mouse has third-button support under OS/2. If so, how do I enable it?

Thanks. Dan Yamane

A Kevin Linfield responds: By default, OS/2 supports all three buttons of Logitech mice. Click on the Desktop or various windows/icons to see the effect. By default, the middle button doesn't do anything except for select.

There are two programs on the FTP site hobbes.nmsu.edu that will assist you, though. X-it gives you a large number of title bar icons (for exiting, rolling up windows, changing font size, etc.) and allows you to map the middle button to any of X-it's functions.

The device driver RODENT.SYS will map the middle button to be the same as pressing the left and right buttons simultane-

ously (causing the task list to appear).

I would recommend X-it, as it is a fairly inexpensive utility that adds much to your OS/2 Desktop.

Bad reputation

Q I have a chance to get the regular OS/2 Warp program at a fairly reasonable price, with the option to get the "Merlin" upgrade at a later date. I have heard that the OS/2 Warp can be tricky to install. Is there any merit to such talk?

Thanks in advance. Bob Psarom

A Kevin Linfield responds: OS/2 has a bad reputation for installation that just isn't true anymore. When version 1.x and 2.x were current, OS/2 worked on a limited number of systems due to a severe lack of hardware device drivers—in particular, drivers for video cards and CD-ROMs.

That changed, however, when Warp (version 3.0) was released. At that time, IBM included device drivers for hundreds of hardware devices and OS/2 Warp should work on any current machine.

Now, sound cards are probably the only thing you may have problems with. Many Sound Blaster-compatible cards are not 100 percent compatible. Since Creative Labs (makers of the true Sound Blaster cards) wrote the sound device driver for OS/2, it checks for these clone cards and refuses to work with them.

I would encourage you to install OS/2 Warp 3.0 on your machine (assuming you have at least 8 MB of RAM) and give it a try. I'll bet you will like what you see.

F: drive Fixpak follies

Q I am using OS/2 Warp 3 with Fixpak 22. Now my LaunchPad keeps looking to my drive F: (a CD-ROM drive), and hence I see a SYS0039 every time I boot Warp without putting a disk in the drive or removing the drive altogether.

I have double checked that none of my items on the LaunchPad make references to drive F:, and it has no reason to try accessing my drive F: every time Warp boots. By analyzing the file, I found that there are references to drive F: in OS2SYS.INI, but changing those references doesn't work. Neither does killing the LaunchPad then recreating it by double-clicking on the desktop. What has gone wrong?

Thanks in advance, Keith Hui.

A Kevin Linfield responds: There are a number of reasons why OS/2 is checking the CD-ROM every time it boots. The first thing I would do is make sure you have the line "set restartobjects=startupfoldersonly" in your CONFIG.SYS. This will prevent programs not in your startup folder from launching automatically.

Secondly, check your PATH and LIBPATH

statement in your CONFIG.SYS and make sure they do not contain a reference to your CD-ROM drive.

Thirdly, make sure nothing in your CONFIG.SYS references anything on your CD-ROM drive.

If none of this helps, you may have to back out Fixpak 22. You don't mention if this problem occurred before installing this Fixpak, so this may not be a solution. Also, check your STARTUPCMD file (in the root directory of your OS/2 boot partition) for references to your CD-ROM. If none of this helps, you may have to remove everything from your LaunchPad one-by-one until you find the reference to your removable drive.

Start again!

Q I had OS/2 installed on a drive that was drive letter "E:". I installed Linux on the drive that was "D:". When I did this, all the drive letters changed after "C:" and now OS/2 is on the "D:" drive. It is looking to find everything on the "E:" drive and I have changed everything in the CONFIG.SYS, changed the paths within INI.LRC and INISYS.RC to point at the "D:" drive and rebuild the OS2.INI and OS2SYS.INI files.

Looking at the contents of all these files shows that there are no traces of "E:" anywhere. It now boots okay, but says it can't find my desk-

continued on page 60

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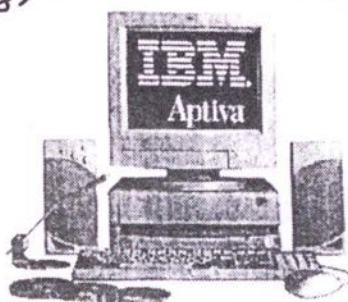
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The skinny on "Fat" software



Q Dear Doctor: I was installing some software on my Power Mac 7200 the other day and read about "Fat" software. What is the difference between native software, conventional software, and "Fat" software? Signed: Kevin from Barrie.

A Dear Kevin: Any Power Macintosh can run in two modes: it can run "native" software (written specifically for the PowerPC chip), or "conventional" software (written for older 68K-based computers to maintain backward compatibility). Industry folks sometimes refer to conventional software as "68K" software.

On a Power Mac 7200, conventional software runs in "emulation" mode, making the computer functionally equivalent to a Macintosh IIx or a Quadra 605. To complicate this further, this performance also depends on how many references the software makes to the machine's "toolbox" (a set of internal software routines in your computer). Conventional (i.e., 68K) extensions and control panels may rewrite native parts of the system software, causing slower performance. That's just the nature of emulation.

Native software, on the other hand, runs only on Power Macintosh computers. The software has been specially rewritten to take advantage of the PowerPC chip inside

all Power Macintosh computers. This is great if you have a Power Mac, but native software won't run if you have an older, 68K-based computer.

"Fat" applications are those that run on either a 68K or a Power Mac without modification. The operating system automatically determines which part to use and ignores the other part. Since Fat applications are really two programs in one, many installers will offer either a "Power Macintosh" or "Conventional" install.

So, if you install a software application that bills itself as "Accelerated for Power Macintosh," and, once installed, your Mac runs slower than you think it should, make sure you have installed the correct version. Both native and conventional versions will run on the Power Macintosh, but only the native version will benefit from all the special features of the Power Macintosh. Signed: The Doctor.

More font follies

Q Dear Doctor: My LaserWriter II printer sometimes decides not to print large jobs. What do I do? Signed: Chantelle via an ISP.

A Dear Chantelle: My guess is you're using too many fonts. Some older printers with small amounts of memory will not print documents containing large numbers of fonts unless you select a special option. Try selecting Unlimited Downloadable Fonts in the Page Setup Options dialog box before you print. Signed: The Doctor.

Gimme a refill

Q Dear Doctor: My company has been refilling laser cartridges for years and seems to have good luck with the company we use for this job. Is it okay for us to

use ink cartridge refill kits with my StyleWriter II printer? Signed: Claude in Burnaby.

A Dear Claude: Apple StyleWriter ink cartridges are made by Canon for Apple. Both companies suggest that physical damage to the printer will be caused by the use of a third-party print cartridge or ink refill kits that don't meet the manufacturer's standards. Not only that, but, according to Apple, using a third-party cartridge or refilling an old cartridge will void the printer's warranty.

Since there have been no studies on the effectiveness (or safety) on the refilled cartridges, we'd recommend sticking with the original equipment from Apple or Canon—at least for now. Then again, the Doctor recalls when every printer manufacturer recommended against using refurbished laser cartridges. The scare tactic suggested the cartridges would somehow damage the printer or produce sub-standard results. To be sure, many refilled laser cartridges didn't work as well as their manufacturers claimed, especially in the early years of the industry. It's easy to be skeptical of any company that says its competitors' products are no good, however. Signed: The Doctor.

Battery blues

Q Dear Doctor: Although I love my QuickTake 150 digital camera, I'm running out of patience with its ravenous battery habits. Which AC adapter can I use with my QuickTake? Signed: Maria in Toronto.

A Dear Maria: You can use either the QuickTake AC Adapter (Apple part number #M2851LL/A) or the Macintosh PowerBook AC Adapter (Apple part #M4662LL/A) with the camera. At about \$100, the first option is probably cheaper

unless you can find someone with an old PowerBook 100 Series adapter. Apple says that the use of other AC adapters could cause damage to the camera. Signed: The Doctor.

MacShrink FactSheets are back

The Doctor now makes house calls. Well, perhaps not in person but, hey, what do you want for free? Back by popular demand, the MacShrink FactSheets now feature individual articles on how to prevent (and cure) system crashes, start-up problems, printing problems, SCSI hassles and much more. As usual, FactSheets are free for the asking (and a self-addressed, stamped business-size envelope).

You can reach MacShrink directly by sending your message to MacShrink@aol.com. Your last name and e-mail address will not be printed. Please note that due to the volume of mail, individual questions cannot be answered. All questions become the property of MacShrink™ and David Rosen.

You asked us: OS/2

continued from page 59

top that is referred to by OS/2.INI. It sounds like a reinstall, but what if I decide to remove Linux and go with FAT and then it moves again back to "E"? There has to be an easier way.

Thanks, Kenton Groombridge

A Kevin Linfield responds: The easiest way would have been to either put Linux beyond your OS/2 partition, or add a small partition between C: and D:. Partition Magic would have allowed you to do either of these tasks, but since you have already messed with OS/2's system files, you will most likely have to reinstall OS/2.

You are correct in having to change all references in the INI files and CONFIG.SYS, but you forgot about all of your extended attributes. Take this as a lesson and reinstall OS/2. You could always upgrade to OS/2 Warp 4 (Merlin) and start with a fresh install. ♦

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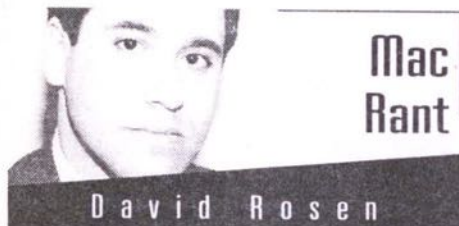
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**Mac
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David Rosen

An industry friend of the Ranting One once stated, "if I hear that Christmas song again I'll go mentally insane." Now, ignoring the obvious redundancy in the sentence, we're left with an interesting observation: even people whose singing skills could crack a porcelain shower stall get into the festive spirit and croon like old Bing during the holiday season.

I Left My Heart In San Francisco

If you're not singing the blues this month, perhaps you left behind the Canadian Winter—for a few days anyway. Those in the know headed south to The City by the Bay to take in the glory and wonder that is MacWorld San Francisco.

Mac clone maker Power Computing is one of the many companies in attendance that definitely has something to crow about. Predictions are that the company's, um, appropriation of some key executives from Dell Computer and Gateway 2000 will have the show floor positively chirping.

A lot of people were humming Power Computing's tune this summer when the company started shipping the fastest micros around—Mac or PC. Could it be that these new birds will lead Power Computing into the Windows side of life or does their migration signal the company is primping itself for a serious fight in the low-cost "commodity" PC business?

Power Computing scored another major coup when it licensed Be Inc.'s BeOS, leapfrogging ahead of Apple. Readers of November's MacRant column might recall we suggested Apple's rumoured alliance with Be was stalled. Since Apple's own new whiz-bang operating system—code-named Copland—seems to be behind schedule, Apple is said to be looking at Be to provide

some key components, rather than a replacement operating system.

Meanwhile, Power Computing said it would continue to pre-load the MacOS on their computers, but ship BeOS on a CD-ROM.

It Was 20 Years Ago Today...

...that Apple taught IBM to play. Now, we're not trying to rewrite a classic Beatles song, but take note that Apple is out of its terrible teens. In fact, to celebrate its twentieth birthday, the company will this month announce a limited quantity, gee-whiz Mac, code-named Spartacus.

As mentioned in a previous column, the machine will sport some never-before-seen technology that will delight and astound anyone within ear- or eyeshot. If you've ever wanted a showcase Mac, this is it. Wow!

What Would Melody Be Without Harmony?

By the time you read this, Apple should be shipping the Mac OS 7.6. Code-named "Harmony," the OS comes with lots of new goodies including: QuickTime 2.5, QuickDraw 3D 1.0.6, QuickDraw GX 1.1.5, Open Transport/PPP 1.0, and Apple Remote Access Version 2.1.

The most important—and visible—change, however, will be the system's new installation process, which points out specific Read

Me files, updates drivers, and even repairs some hard-drive problems before installing the new system software.

Also new to this version is an upgrade to Apple's Extension Manager, giving you more control over how your Mac operates. Although the company will charge for the new operating system, a final price was not available at press time.

Unforgettable

One of MacRant's many readers pointed out an apparent mistake in a previous column. I quoteth: "Shakespeare's Caesar says, in correct Latin, 'Et tu, Brute!' (Act III, Scene 1), not, as you put it in bad Latin, 'Et tu Brutus.'"

Well, you may not believe us but I meant to do that. The Ranting One has seen several years of Latin and more than his share of Shakespeare. I had to decide whether to put the correct quote in (without the "s") or the incorrect one (as was printed). If I opted for the correct one, I reasoned, a lot more of you might write and say, "hey, Rant, there's an 's' missing: the guy's name wasn't 'Brute' for goodness sakes".

Even if you can't carry a tune in a paper bag, you can still sing your guts out like the proverbial canary to MacRant@aol.com. Please note that due to the volume of mail, individual questions cannot be answered.

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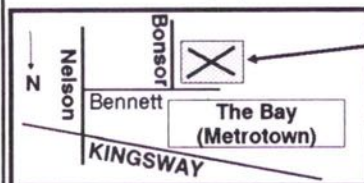
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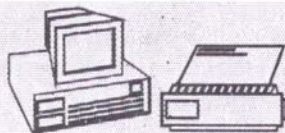
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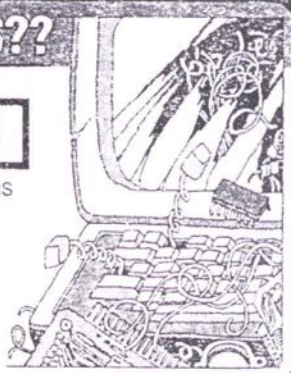
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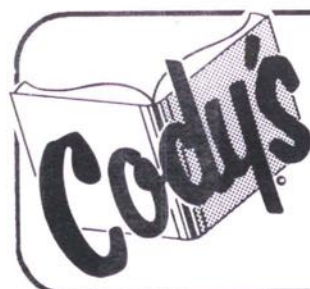
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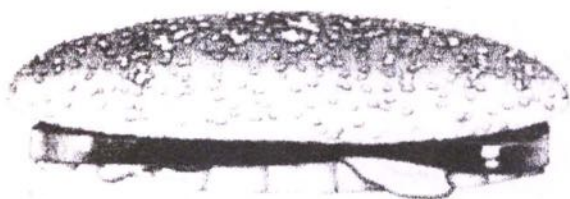
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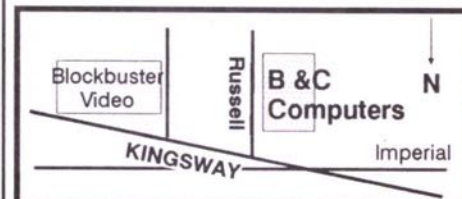
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Internet 連線網路介紹

作者: 林啓清

一、前言

在全世界, 與 Internet 有連接的網路, 那真是太多了, 像知名的 CompuServe 也加入 ISP 的行列了。

以下是美國的 PCcomputing 雜誌對於各 ISP 所作的一簡單評定表:

	NetCom	Prodigy	SprintLink	Pipeline	Performance
聯絡電話	1-408-345-2600	1-800-776-3449	1-206-447-0300	1-212-267-3636	1-703-904-4100
使用費用	US\$ 19.95	US\$9.95 (5 HR)	每小時 US\$8.95	US\$ 19.95	US\$9.00 (9 HR)
E-Mail	功能尚可接受	功能很好	功能很好	功能最好	功能很好
WWW功能	功能勉強可接受	功能最好	功能尚可接受	功能尚可接受	功能尚可接受
FTP功能	功能勉強可接受	功能尚可接受	功能尚可接受	功能尚可接受	功能勉強可接受
News功能	功能勉強可接受	功能還算好	功能很好	功能勉強可接受	功能勉強可接受
綜合評定	功能勉強可接受	功能還算好	功能還算好	功能還算好	功能陽春

在北美這裡(其實臺灣也差不多), 目前的 ISP 真是百家爭鳴, 令人不知從何選擇?

由於在國外, 差不多所有的家用電話都是沒有撥接限制(沒有通數限制、沒有連接時間限制, 只需付基本費), 所以這些 ISP 都得面對那些"永不斷線"的玩家, 電話線路都上百條以上。

大部份的 ISP 對於每線所能服務的會員數, 是以每一線服務二十位會員計算, 所以當他們的會員高達2000人時, 他們的線路可能就會高達100條囉!

在尖峰時段, 差不多每家 ISP 都很難撥得進去, ISP 也不會針對這一點來加以處理, 因為那是無法解決的.....)

只有那些採用不同時段計費的 ISP 在尖峰時段能有較好的撥通率。

由於競爭激烈, 所以有些採取完全沒有使用時間限制的 ISP 生意很好, 但會員們卻得忍受撥不進去的痛苦。

以加拿大溫哥華為例, 每月只收約臺幣19.95元的會員費, 但會員卻可享用完全沒有任何時間限制的 Internet 服務的 ISP 越來越少了。就算有, 都只有短期的促銷罷了!

當然, 筆者也去申請了一個帳戶, 一連上就不斷線(因為沒有使用時間限制, 然後加拿大的家用電話只要交基本費即可), 總共連了一個多星期沒有斷線, 後來我所申請的帳戶就不能用了.....)

這種任意停止會員使用權的情況, 偶爾會在一些 ISP 發生, 各位也要稍加留意!

而許多 ISP 玩花樣的情形, 也屢見不鮮。像 Unlimited Access 與 Unlimited Time Access 就是有差別的哦!

Unlimited Access 指的是您可以不限次數撥接上線(只要您能連得進來), 但連線的總時數可能是有限制的? 也就是雖然您可以不限次數撥進來, 但連線總時數如果超過一個限制, 那您就不能再連進來了(或要再付錢)?

Unlimited Time Access 指的是您愛連多久就可以連多久(只要您能連得進來), 但有的 ISP 會有時段的限制。也就是只有一個時段(例如白天)提供, 其他

時段還是有時間限制的哦!

在國外, 大部份的 ISP 都是使用 T1 來與 Internet 連接, 較大的 ISP 則是使用 T3 來與 Internet 連接。至於使用低於 T1 來與 Internet 連接的 ISP, 大多門可羅雀(除非他的價格非常便宜, 或者會員不知道該 ISP 的專線速度)。

事實上, 像這種 ISP 欺騙用戶的案例, 在國外也是屢見不鮮的.....)

所以, 當您在申請 Internet 服務時, 不要害羞, 請直接問重點:

1. 我是不是可以一直連著線, 而只要付您廣告上所講的價錢(如果是不限時數)?

2. 您們連上 Internet 的專線速度是多少(不要問是不是 T1)?

3. 我申請時, 除了繳月費, 還要不要繳其他費用(有些要申請費)?

4. 您們有沒有送 Internet 的相關軟體(For Windows 3.1 或 95)?

5. 您們提供撥接線的速度是多少(有 14.4K、28.8K、33.6K 及 ISDN)?

有些 ISP 雖然用的是 T1 但卻是與別人共用的, 所以事實上的速度不會是 1.54M?

二、Internet Service Provider 的處境

據瞭解, 透過有線電視網的線路來傳送有線信號, 速度比透過電話線快一千倍。因為傳送有線電視信號的同軸電纜線, 比一般電話線有較為廣闊的頻寬。可是, 假如數以千計的電腦網路用戶同時上線, 是否能維持這樣的高速, 則仍是一項疑問。

可是, 最大的問題是在於, 目前的有線電視解調器只能作單向的訊息傳送, 就是把電視信號傳至家庭, 而沒有從家庭方面作出反向傳送。如要作雙向傳送, 有線電視業者必須在所有的線路上裝置雙向信號擴增器, 所費不貲。

在各種技術問題還在爭論不休之際, 為 Internet 提供傳訊管道的獨立小業者 (ISP), 已開始有自危的感覺, 紛紛尋求自保之道。他們已了解到, 業務上單是靠提供傳訊管道, 將會是無法生存

的。他們必須參與提供網路的資訊內容，以及"線上出版"的諮詢等服務。

另一方面，這些獨立小業者又擔心電話公司提高他們的電話費，使他們在競爭中更是陷於弱勢，比如在加拿大的亞伯達省，當地的主要電話公司不久前宣佈加入Internet的連線傳送服務。與此同時，該等電話公司又把從事網路傳訊的獨立小業者，歸入與先前不同的電話用戶類別中(比商業用戶更高一級的基本費)，使他們的電話費增加逾一倍。這些小業者已向聯邦政府的商業競爭局提出申訴，要求調查此中是否包含不公平競爭的因素。

在加拿大的BC省也有類似的情況，但"BC電話公司"的市場事務主任鄧恩表示，這些小業者電話費被調高，純粹是因為他們對電話線的使用異常頻密.....)

而在BC省(溫哥華就是位於該省)最大的一家有線電視業者(Rogers Cable)，也已經開始提供Internet連線服務(透過Cable系統網路)。目前尚在試用階段，應該到明年就可以開始全面的推廣？

不過，要透過Cable來上Internet，您必須要添購一部Cable MODEM，這個小東西可不便宜，大多是向Cable公司來租用？

三、Internet上的語音市場

另外一方面，若要等待鋪設電纜和由電話公司興建光纖線以接通電視網路，可能還得等上十年八載，而且要耗費數以億美元計的投資，很多迫不急待的"電腦迷"目前已在現有的電話線上發展了他們的電腦網路王國，以現有的軟體和設備，將原有的傳訊工具重新發展成新的傳播媒介。

Internet上的使用者今後都可以在電腦上欣賞到音樂、電影、錄影帶和戲劇等節目，

不少新節目都是從以往收音機和電視黃金時期的代表作中抽取出來的，如問答遊戲節目、談話性節目、肥皂劇、卡通等，不同的是這些節目一經儲存在Internet，用戶便可以隨時隨地重溫。84年4月，一位名格拉澤的商人在美國西雅圖成立了一間名Progressive Networks的公司。他們把電台播放節目收入網路，供一般人由Internet接收。

格拉澤使用了一種名叫RealAudio的資料壓縮技術，所以聲音品質很高，只要先選擇該節目的代號，便可以立即從電腦的喇叭中聽到。如果只想收聽某一時段的節目，聽眾只要在電腦螢幕上選擇"暫停"、"回捲"、"前進"等按鍵即可。

美國的一些大型廣播電台已取得利用RealAudio技術的授權，以便透過Internet來播放他們的廣播性節目。例如，國家公衆電台(National Public Radio)已利用RealAudio在Internet上播

放一些新聞時事節目；ABC電台亦把該台每小時的新聞廣播送上Internet，計畫中還會利用這技術來播放問答遊戲和談話性節目，使Internet上的聽眾更能投入電台節目。

當然，WWW世界的老大NetScape也可以直接收取RealAudio的信號(如果您有裝RealAudio的Plugin軟體)。

四、Internet上的幾個地方

如果您已經能夠上Internet，而且也有WorldWideWeb的瀏覽程式，那麼以下幾個WebSite，您可以連進去看看，很精彩的哦！

<http://www.comdex.com>
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五、結語

筆者剛在我的WebSite上裝了一個"留言板"的程式(自己寫的CGI程式)，歡迎各位連到我的<http://www.cads.com.tw>來瞧瞧吧！

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These books mean business

• • By ALAN THWAITES • •

The development of the Internet for business purposes has been one of the most significant events of the 1990s. Because the World Wide Web offers a simple, cross-platform interface, outstanding support for delivery of multimedia data, and low deployment costs, businesses large and small are clamouring for their innings in cyberspace.

It's been a time of experimentation, turmoil, and—for many—disappointment. Businesses that had originally seen the Web as the ideal vehicle for marketing purposes soon discovered that building a sound business case for Web development, and presenting more than simply a "silicon-based brochure," were a necessity if serious profits were to be realized. The first wave of Web businesses surged, crested, and fell back.

The second wave is seeing a concerted effort by business consultants and software developers to marry the Web's user-friendly features with the data tools needed to make good business happen.

Know where the action is

According to Curt Lang and Jeff Chow, the authors of *Database Publishing on the Web*

and *Intranets*, the real action is not where Web denizens might expect. While the "bleeding edge crowd," as they put it, enthuse about real-time video, morphing, and stereo sound, developers of software business tools are working on "the presentation of database information as a solution to real-world business needs."

In their book, Lang and Chow lay out the steps required to master database publishing on the Web site. It's aimed at the publishers, WebMasters, and product developers who work behind the scenes to make magic happen on a successful business-oriented site. For obvious reasons, the knowledge laid out between the covers of *Database Publishing* will also be of value to corporate or entrepreneurial types who are planning to include powerful database tools on their sites. The book is divided into three sections. The first four chapters cover, in sequence,

the background technologies that led to the emergence of Web database tools, the architecture of Web database applications and their software components, a Q&A for determining appropriate platforms and tools, and the essentials of HTML programming needed for building Web database applications.

Each of the following six chapters takes a close look at database tools, examining in turn Cold Fusion, dbWeb, JAGG, DataRamp, LiveWire, and PowerBuilder.

The last chapter in the book is a directory of over 80 database software tools, including middleware products, full-text retrieval software, and relational DBMS tools with Web interfaces.

The accompanying CD-ROM contains a mix of appropriate software, including a Windows NT-compatible Web server, an evaluation version of Cold Fusion, the latest version of the PERL scripting language, documentation for the JAVA API (Application Programming Interface), and the WAIS (Wide Area Information Server) search engine.

Although technical in approach and subject matter, *Database Publishing* presents its information clearly and comprehensively. Even a newcomer to the worlds of Web publishing and database design will find it of great value.

The human element

Technologies are, of course, only part of the successful business equation. For project managers and business developers, understanding new business models is critical to the success of a business-oriented Web site. Failure to do so resulted in many early business Web sites being abandoned, "left like billboards littering the information backroads, the victims of failed enthusiasm or an excessive zeal of losing that competitive edge," in the words of the authors of *Building Successful Internet Businesses*.

This book details what it takes to devise and develop Internet business applications for the radically different "marketspace" of the Net. To do so, the authors lay out their wisdom in four parts.

Part One covers the nature of Internet communication systems and their relation-

ship to new business models. Part Two covers the nitty-gritty of online publishing and information delivery (digital publications news delivery, and directory services), and Part Three the requirements of electronic commerce (including security standards encryption, and e-cash).

Part Four, "Managing Your Project," is a detailed roll-out of the nuts and bolts of recognizing opportunities, devising a business plan, and developing a product or service to be marketed on the Net. The book closes with advice about putting together appropriate hardware and software tools to support the planning. A strength of the book is that as each application of Internet tools and models is introduced and explained, an example of a business venture using the tool is presented and analyzed. This helps the reader understand quickly why the venture has been successful, and suggests information that can be

transferred to his or her own situation.

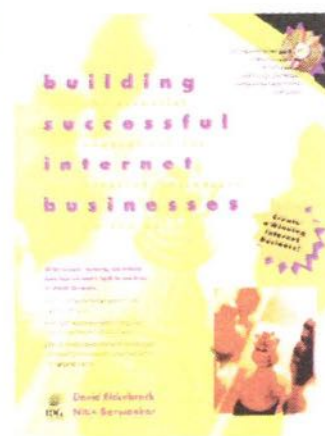
The accompanying CD-ROM holds database middleware, PERL 5, the SATAN security tool, the Apache public-domain Web server for Windows NT, and the Mini SQL 1.0 relational database engine. ♦

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Database Publishing on the Web and Intranets, by Curt Lang and Jeff Chow, from Coriolis Group Books. \$55.99 (includes CD-ROM).

For more info, visit <http://www.coriolis.com/>
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An insightful, irreverent look at work

• • By KEVIN LINFIELD • •

Our everyday world is so hectic that it's nice to be able to laugh at situations we might usually take for granted. For anyone who has ever worked in an office, worked with computers, or even dealt with other companies on a day-to-day basis, I would highly recommend reading *The Dilbert Principle*.

i n f o
b o x

The Dilbert Principle, by Scott Adams, from Harper Business. 1996. \$22.50.

The book is based on an article Scott Adams wrote for the *Wall Street Journal* that received such a positive response that he decided to expand upon his thoughts and ideas. Subtitled *A Cubicle's Eye View of Bosses, Meetings, Management Fads, & Other Workplace Afflictions*, Adams pokes fun at virtually everything and everybody in the workplace.

The book contains comics from the Dilbert strip, anecdotes of Adams' experience before he was a cartoonist (he claims 17 years in a cubicle gave him inspiration), and pages of e-mail from people who read the Dilbert comic and provide him with anecdotes of their own.

Computer users and office workers will appreciate the humour and his multiple jabs at office life and corporate policy. He comments that no matter how absurd he tries to make his comic strip, people write to him and say "That's just like my company!" He also comes up with strange analogies that may amuse, but also make us wonder. One example: "Any absurdity in a business setting stands out like a dead nun in a snowbank."

May offend some—good!

If you do not like the wacky humour of the comic strip, you may become annoyed at the frankness and offbeat attitude. Adams admits in the introduction that he made up all of the statistics and scientific studies that are quoted in the book, and he calls people (including himself) idiots for often performing irrational acts.

An example of one of his amusing anecdotes is "Kodak introduced a single-use camera called the Weekender. Customers have called the support line to ask if it is okay to use it during the week."

The 336-page book contains 26 chapters on topics such as Business Communication, Pre-tending to Work, Performance Reviews, Downsizing, and even How to Tell if Your Company is Doomed.

Having used computers for more than 15 years and having worked in an office and as a computer programmer, I found many of the situations described in *The Dilbert Principle* extremely funny and realistic. It really makes you wonder how some companies are able

to stay in business with the way they treat customers and their own employees.

I do, however, feel the book has a bit too

much filler. Near the end, the chapters consist of more e-mail and fewer humorous anecdotes. I also did not like the fact that some of

the Dilbert comics are repeated in different chapters, but now I'm just nit-picking. Overall, I would urge everyone to get this book. ♦

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Computer security book is scary, but useful

• • By ALAN THWAITS • •

In the words of an old Byrds song, "You don't miss your water 'til your well runs dry." Barry Lewis, co-author of *Computer Security for Dummies*,

puts it this way: "As computer prices fall and interest in the Internet rises, more and more people are at risk of virus attack, lost or stolen passwords, and, most importantly, data loss."

Computer Security for

Dummies is written for everyone, from the casual home user to the networked office worker. Both authors are computer security consultants who have experience answering the needs of IS firms. What they've done in *CSD* is trans-

late that expertise into information that's of practical and immediate use, all done in standard "Dummies" style: plain English, a light touch of humour, and some cartoons. The content, however, is solid and very helpful.

The book begins by identifying and explaining basic security issues and terms. A quick look at key principles, such as "accountability," "authentication," and "auditing," and a discussion of "risk management" lead to a detailed analysis of the threats that computer users face.

Boo hoo

The list is enough to make a grown man weep, as it includes viral attacks, password grabbers, Trojan horses, cuckoo eggs, and time bombs, as well as the more mundane spikes, brownouts, and blackouts, and the ever-present "stupid human tricks."

Knowing what the threats are and what risks they pose leads (thank heaven!) to a lengthy discussion of methods that can be used to ensure computer security. These range all way from keeping one's computer physically secure (tie-downs, key-locks, and alarms), to controlling access with system and file passwords (the book looks at most common wordprocessing, spreadsheet, and database apps for Windows 3.1, 95, and Mac environments), to the critical importance of backing up, to ways of dealing with viruses and other malicious programs.

Of particular interest to users of the Internet will be a section of using e-mail securely. The elements for keeping one's e-mail safe from prying eyes involve encoding, encryption, digital signatures, and anonymous remailers.

The book includes a handy list of resources, from easily accessible DOS, Windows, and Mac security utilities, to a description of common virus types and what they do. Also included are addresses of mailing lists, newsgroups, and organizations that deal with computer security issues.

How helpful is the book? Well, after reading it, this reviewer now uses system and file passwords on both desktop and palmtop machines, backs up data files on a daily basis, and is exploring the use of a PGP (Pretty Good Privacy) add-on to *Eudora* (for Internet-based e-mail). I'm also feeling a lot more secure about not letting the aforementioned well run dry! ♦

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Computer Security for Dummies, by Peter T. Davis and Barry D. Lewis, from IDG Books. \$26.99.

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Videoconferencing book means business

•• By LYNN GREINER ••

With travel expenses skyrocketing, many companies are seeking less expensive means of conducting multi-office meetings. One up-and-coming technology is the videoconference, in which participants gather in several locations and "meet" over a video link.

But virtual meetings by electronic means entail new sets of skills, and new organizational challenges we probably haven't considered. Effective Videoconferencing: Techniques for Better Business Meetings, by Lynn Diamond, PhD, and Stephanie Roberts, teaches those skills and addresses many of the challenges in a clear, concise, and readable format.

agenda items (when graphics should be displayed, for example, or who is presenting a segment, and so should be on-camera).

Handy with the details

This is a useful little volume, for both the

first-time moderator or participant and the veteran. It lays out the elements of a successful videoconference (even those elusive little details that sneak up and do us in) in a tidy, sensible format. It can be a self-study guide, a workshop text, or simply that well-thumbed

reference book you grab whenever a question arises.

Whether you're using the technology, or just thinking about it, it's a worthy addition to your corporate library. ♦

info box

Effective Videoconferencing: Techniques for Better Business Meetings, by Lynn Diamond, PhD, and Stephanie Roberts, from Crisp Publications Inc. \$13.95.

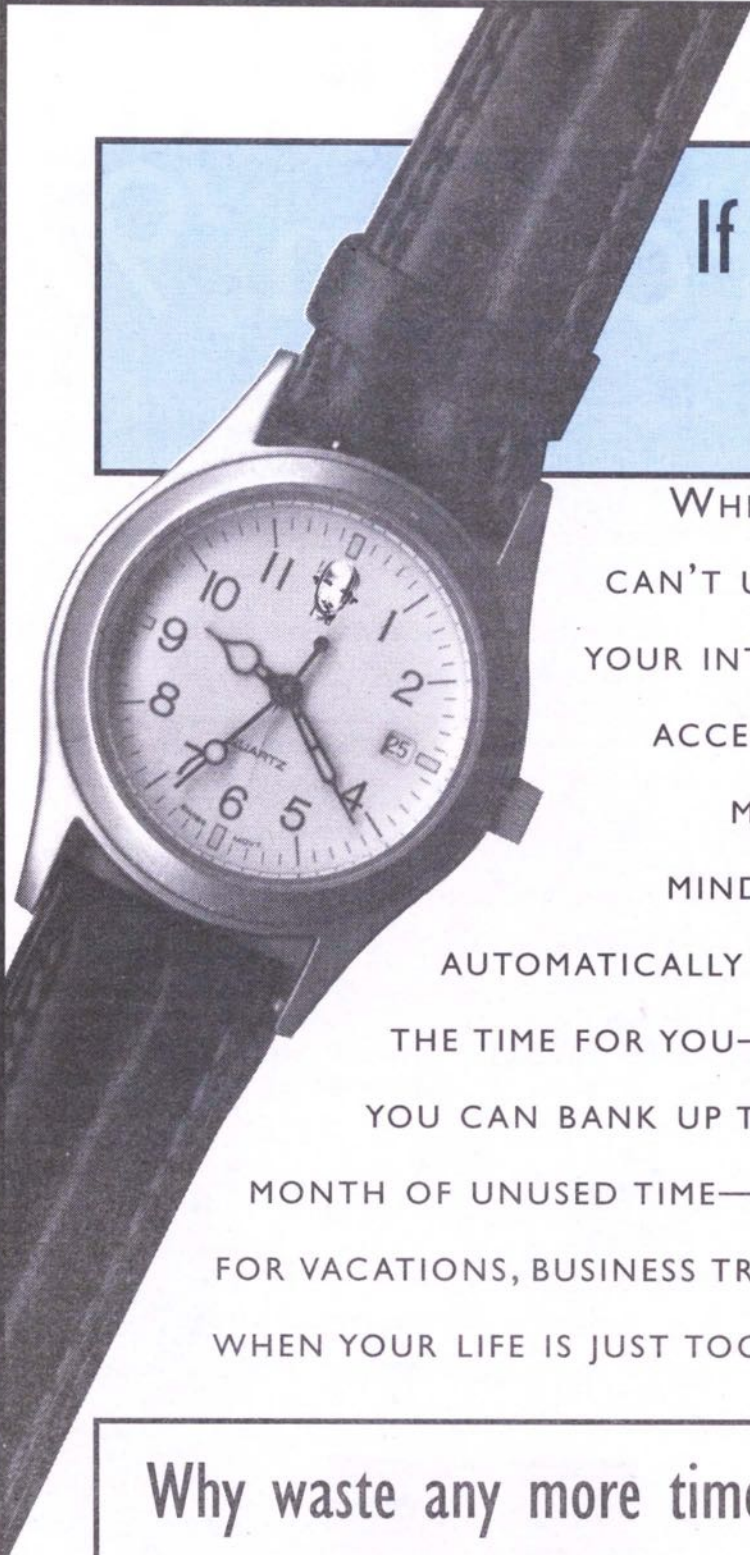
In about 100 pages, the book takes you through the process of organizing and participating in an effective videoconference, using checklists and charts to present the most information in the least space. It starts by examining what videoconferencing is, and when it's appropriate. A handy chart lists various scenarios and issues, and indicates when electronic mail or other simpler, less expensive communications would do the trick, and when a videoconference is the preferred medium. There are discussions of six strategic advantages to videoconferencing, as well as just what you need to help justify it to the boss.

Just enough jargon

There's a chapter containing the technical information you need (in not too much detail—just enough to help you make intelligent decisions), and another on planning the meeting. Much of it is useful for any old meeting, not just virtual ones, like the suggestion that the meeting have a clearly defined purpose and agenda.

Other nitty-gritties include wardrobe taboos (avoid clothes that match the conference room walls unless you really want to fade into the woodwork), and room setup so all participants can see each other, with diagrams showing how various layouts will look to remote sites. There's even a section for the moderator that talks about how to efficiently manage the discussions.


Appendices include a glossary and a series of checklists and forms you may want to photocopy for regular use: a cost-comparison sheet you can use to prove that the videoconference is, indeed, the most cost-effective solution; a planning checklist; and a storyboard layout you can use to decide how the electronic media should interact with the



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By MARA GULENS & GAÉTAN MARTEL

How can you not be awed by this city devoid of values smack in the middle of the desert? Similarly, how can you not be dazzled by the launch of thousands of new products—only 500 of which merited *Byte* magazine's attention for "Best of Show?"

Being part of a group of 200,000 technology



hounds can be quite exhausting—if not for the hubbub alone. We had been forewarned about wearing comfortable shoes. What we had not anticipated was the endless hiking through pavilions and the unavoidable bus, taxi and restaurant lines. Then again, this show is four times larger than Comdex Canada, seven times larger than Comdex PacRim, and ten times

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Las Vegas. What could be a better setting for North America's largest computer electronics show? Like Vegas, Fall Comdex is out to dazzle; like Vegas, the products launched at Comdex have limited life spans.

larger than Montreal's SCIB.

Star players were located at the Convention Center, in satellite-shaped configurations featuring something like Microsoft and Friends, IBM and Friends, Digital and Friends... Internet companies were in four huge tents and the Hilton hotel, while the "others" were at the Sands hotel, divided into national representations and the "flea market."

But what a flea market! Numerous companies from Taiwan and elsewhere in Asia offered everything from variously shaped mice to a program designed for conducting orchestral music (although conducting with a mouse does feel a bit odd!).

The commercial exhibit itself was both a reflection of the future and a confirmation of major forces. The Network Computer (NC), generally thought to be more "retroware" than "revolutionary," had a discreet presence, thereby affirming the industry's reluctance to accept it. There was greater visibility for the Digital Video Disk (DVD)—or Digital Versatile Disk—the new CD-drive designed to eventually replace current CD-ROM readers.

Wallflower?

Apple's low-key attendance, reflected in a dull press conference where the future dominated ("We will..., we will..."), was like-

wise representative of a strategic withdrawal, probably made in order to be in a better take-off position. But the question remains: take-off to where?

Another noticeable element was the aggressive arrival of principal players in the mass-electronics business. It seems that the word has gotten around: Sony, Toshiba, Samsung, and others we know through stereo systems or televisions were out in force.

At the Sony booth, you could catch a glimpse of the future with wide-screen TV/PCs and the digital home network 1394. While outside the convention centre pamphlets advertised sleazy escort services, inside Samsung teamed up with Vogue and Saks 5th Avenue for the "Women, Fashion, and Technology Show." Outfits had "sleek ergonomic design and hide-away drop-down panels," and like the notebook computers, promised "inter-

active freedom." The Internet was everywhere—as it was last year—and offered no real surprises, apart from some products allowing for the instant distribution of information. For example, Global Village Communications' News Catcher, a pager-like device that sits next to the computer, wirelessly indicates the arrival of e-mail, news and information 24-hours a day. It's sort of like PointCast, but with a twist, because you

click on an icon to launch your e-mail program or Web browser when you chose (<http://www.globalvillage.com/>).

The glitziest, most touted launch of all was Microsoft's Windows CE (Consumer Electronics), an operating system for mobile devices aimed at mobile professionals. Hand-held PCs, from LG Electronics, Casio, NEC, and others, will include scaled-down versions of *Microsoft Word*, *Excel*, and *Internet Explorer*, as well as two-way synchronization with the PC. This got even some anti-PDA folks itching to buy one. Most of the hand-held PCs will be priced around \$600 and should be available later this year.

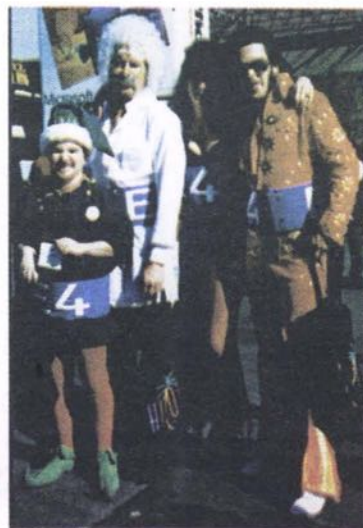
Sensory overload

With 2,100 booths and probably as many product launches, even choosing which products to mention here is a challenge.

We were intrigued by programs such as PictureWorks Technology's NetCard, which allows you to send attached "iMail" (image mail) on a NetCard postcard that can be seen, read and heard by any Windows or Mac user (<http://www.pixworks.com/>).

Media Synergy's @loha allows you to send self-created animation and sound to a Windows user with an accompanying player (<http://www.mediasyn.com/>).

There were plenty of promotional gimmicks to keep one entertained, like the sausage guy from sausage.com (makers of the HotDog Web authoring tool); the Marine with wearable computer gadgets; and jungle explorers with laptops and wireless communication devices. Indeed there was something for everyone. ♦



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Some improbable predictions



OS/2
Ready

Kevin Linfield

Since this is the January issue, I have been requested by the editor to give some prediction of the future. Psychics are never right, however, so I might as well make improbable predictions that, if they ever came true, would make me rich and famous (well, maybe not rich).



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I predict:

- Microsoft will release Microsoft Office for OS/2 with more features than their Windows version.
- DOS will make a big comeback as all the best games are played under DOS.
- OS/2 will actually be advertised and promoted by IBM, and they will even preload it on every computer they sell!
- Games will be so slow on new machines that special game accelerators will flood the market.
- Multiprocessor machines will make a big splash and keep 386 and 486 chip makers in business (imagine hooking up more than 300 Intel 486s in parallel!).

My final prediction: Microsoft will provide voice support with a new version of Windows and everyone will say how amazing it is and wonder why it wasn't done earlier (for those missing the sarcasm, OS/2 Warp 4 includes VoiceType Navigation and Dictation).

Hot news

PowerQuest has released Partition Magic 3.0 with full support of NTFS and FAT32. As reviewed in an earlier issue of Toronto Computes!, Partition Magic lets you resize, move, and create hard-drive partitions on the fly without destroying data. It now includes IBM's Boot Manager and Microhelp's Applications Mover. More information can be obtained from <http://www.powerquest.com/>

The first unlimited and public version of Xfree86 for OS/2 is now generally available. Xfree86 is a full and unrestricted client and server version of the X11 Window system running natively under OS/2 Warp. More information is at <http://borneo.gmd.de/~veit/os2/xf86os2.html>

Frustrated that your favourite software is not native to OS/2? Check out the Petition Page at <http://www.teamos2.org/petition/> and start or sign a petition telling companies that you want good native OS/2 software.

Secret Merlin tips

With the release of Warp 4 (Merlin), IBM has included a number of undocumented switches for the Warp Centre that you can activate by putting statements in your CONFIG.SYS. Some of the popular ones that I have tried include:

- set skillfeatureenabled=1 will provide a list of running processes that can be killed (when pressing CTRL and clicking on the task list button of the Warp Centre).
- set scuseprettyclock=on to change the clock on the Warp Centre to green numbers on a black background.
- set scfindutility=c:\os2\apps\pmseek.exe (or whatever application you want) will run PMSEEK (or whatever you select) instead of the default search utility (which I'm sure 99.99 per cent of us hate).

- set scanbenuded=1 is claimed to protect the Warp Centre from being killed if the WPS is restarted (I have not verified this one!).

Personal top software

Every year I indicate my personal favourite native OS/2 software that I think every OS/2 user should take a look at. This year has had its ups and downs, with the release of OS/2 Warp 4.0 and the demise of DeScribe.

1. PowerQuest's Partition Magic (partition utility)
2. Global Village's FaxWorks Pro (enhanced fax program)
3. IBM DualStor 3.0 (tape backup software)
4. SoftTouch System's GammaTech Utilities
5. TruSpectra's Photo>Graphics (imaging software)
6. Sundial Systems Mesa 2 2.16 (spreadsheet)
7. Netscape Navigator for OS/2
8. EmTec's Zap-O-Comm (modem communication software)
9. IBM AntiVirus 2.5
10. Mail Reader/2 (MR/2) e-mail client

Parting gift?

I'm surprised that something like this hasn't surfaced before, but news on the Internet is claiming that removing Windows 95 from a Boot Manager machine will corrupt any HPFS partitions.

Mike Matrella claims that when he used Windows 95's uninstall feature, it corrupted the partition table, rendering his entire hard drive unreadable. Other users have claimed that similar things have happened to them when they tried to remove Win95. If you want to remove Windows 95 from your OS/2 machine, it might be best to format its partition directly from OS/2.

Paper OS/2 magazines are all dead

Earlier in the year I reported that OS/2 Professional and OS/2 Developer had passed on. As of January's issue, OS/2 Magazine, the sole surviving dedicated OS/2 publication, will cease to exist. We mourn the passing of these magazines, and hope that other publications will carry OS/2 news and reviews.

Don't forget to keep reading OS/2 Ready for all of the best in OS/2 news, reviews, tips, and tricks.

Freeware of the Month

Daniel Kulp has created a Mesa Toolbar Customizer, and has recently updated it for Mesa 2.1.6.

With it, you can customize the toolbar in Mesa for OS/2 to include icons and commands that you feel suit your needs, and you can change the commands invoked for each button.

Get it—and information on it—from <http://www.ccs.neu.edu/home/dkulp/>

Kevin Linfield is a Toronto-based consultant and freelance writer. He can be reached via e-mail at linfield@torfree.net

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Online investment resources exposed

• • By BRANDI JASMINE • •

Investor's Guide to the Net and its sequel, *Expert Investing on the Net*, are a pair of comprehensive guides to online services that cut through the current media hype about the

Internet, describing instead the digital-electronic financial services that investors have been quietly using for the past 30 years.

Investor's Guide starts off by briefly examining the offerings of the "Big Three" online services: CompuServe, America Online, and Prodigy. The descriptions are fair and balanced, as is the advice throughout. The real meat of the book, however, is in the services that have been, thus far, the reserve of high-budget corporate offices: Dow-Jones, Reuters, Knight-Ridder, and Bloomberg.

These services have quietly created their own proprietary networks over the past 30 years, their main clients being large corporations, institutional investors, and news media. They are now developing both proprietary and Internet-compatible resources for investors, with the result that their information is increasingly affordable and accessible—but you still have to know where to look for them. *Investor's Guide* provides that information, while gently nudging technophobic investors into the digital age.

The Internet section is less interesting to the experienced Netter, but could be a valuable guide to the cautious newbie. It starts off with the obligatory introduction to Yahoo!, and to other search engines and financial Web sites, including some notables: the GNN Personal Finance Center, the Investment News Online Press Release Center, and The Money Mentor.

The Financial Markets section highlights online financial newspapers, newsletters, investment clubs, and media that make appearances on the online services, financial services, and, to a limited but increasing extent, on the World Wide Web.

however, the CNNfn Financial Network site, does not seem to be mentioned, but this is nitpicking, considering the relative newness of the service and the longer lead-time of print publications.

A small investment made in this book could quickly pay for itself many times over. In addition to the mega-sites, individual investors, researchers, and analysts will be able to find a plethora of major and minor stock exchanges, government archives, statistics, industry research, and databases, as well as information on alternative securities.

One minor beef is that the book does not offer an online index. It would be most handy to be able to access a Web site that archives the book's URLs in one place on the Web, or via CD ROM. This is, again, a minor shortfall, however.

This set of books is destined to become a dog-eared reference manual in many offices, as investors realize the potential cyberspace offers them. ♦



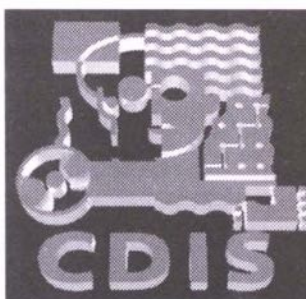
Services you can now access in cyberspace include Associate Press, Knight Ridder Financial, and Lexis/Nexis. One of the best of such sites,

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Investor's Guide to the Net, by Paul B. Farrell, from John Wiley & Sons, Inc. 1996. 0-471-14444-4. \$34.95.
Expert Investing on the Net, by Paul B. Farrell, from John Wiley & Sons, Inc. 1996. 0-471-15867-4. \$34.95.

Online resources

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Investment News Online Press Release Center
<http://inorfg.com/>
The Money Mentor
http://www.moneymentor.com/mm_menu.html
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15" N.I.L.R. \$98 16MB EDO \$49
Multimedia 8x CD, SB16, Speaker \$238

- 16MB 60ns EDO, 256K Burst Cache
- 1.6/1.7GB EIDE hard drive, Mode 4
- 3.5" 1.44MB floppy disk drive
- PCI EIDE, 2x16550UART
- ATI Video Boost 1MB EDO exp. 2M Full Screen MPEG
- 15" Monitor N.I.L.R., Digital Control 1280x1024, .28 dp
- 15" Med-tower case 230W
- Logitech 3B MouseMan
- 104 Windows 95 Keyboard
- 8X EIDE CD-ROM Drive
- SoundBlaster 16 PnP (Creative Lab)
- 60W Multimedia speakers
- 2 Year Parts and Labour Warranty

Options:

32MB EDO \$99 2.1GB Hard drive \$48
10X /12XCD-ROM Drive \$28/49

- 32MB 60ns EDO, 256K Burst Cache
- 2.1GB EIDE hard drive, Mode 4
- 3.5" 1.44MB floppy disk drive
- PCI EIDE, 2x16550UART
- ATI 3D Xpression+ PC2TV 2MB SDRAM exp 4M, Full Screen MPEG
- 15" Monitor N.I.L.R., Digital Control 1280x1024, .28 dp
- 17" ATX-tower case 230W CSA
- Microsoft 2B Mouse (PS/2)
- 104 Windows 95 Keyboard
- 12X EIDE CD-ROM Drive
- SoundBlaster 16 PnP (Creative Lab)
- 60W Multimedia speakers & MIC
- 2 Year Parts and Labour Warranty

Options:

Matrox 2W \$88 2.5/3.1GB HD \$68/128
15" SONY SX \$198 SB32 PnP \$68

Win95 Full \$125 NT Workstation 4.0 \$288 MS Home (6 titles) \$89 MS Nature K.B. \$85 MS Office Pro 7.0 \$459
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OptiQuest V775 .26 1600x1200
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EDO 8/16/32MB \$45/95/195
KAO CDR 74 Min. \$11.50

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M520 Triton II 430VX 256K 75-200MHz 1 Dimm	\$125
Shuttle Hot-557 Pentium 430VX 2 Dimms USB Ready	\$149
Gigabyte 586VX PCI w/ EIDE, high speed IO	\$175
256K Pipeline Burst Cache, Triton II 430VX, Flash BIOS	
Gigabyte 586HX PCI w/ EIDE, high speed IO	\$199
512K Pipeline Burst Cache, Triton II 439HX, Flash BIOS	
QDI Explorer-II/LuckyStar w/ EIDE, high speed IO	\$148
256K Pipeline Burst Cache, Triton-II chipset, Flash BIOS	
ASUS P4-P55T2P4 w/ EIDE, high speed IO /ATX	\$199/209
256K Pipeline Burst Cache, Triton II, Flash	
TYAN TOMCAT III Dual Pentium Socket 7	\$348
512K Pipeline Burst Cache, Triton II, Flash, 8 RAM slots	
Intel Mari w/ EIDE, high speed IO	\$178
256K Burst Cache, Triton, II 430HX, Flash ATX Style	
Intel Venus Pentium Pro w/ EIDE, high speed IO	\$365
256K Burst Cache, ATX Style AMI Flash BIOS	

INTEL Pentium CPU

Pro-200 P100	P120	P133	P150	P166
Scall	\$168	\$189	\$299	\$378
	\$499			

AMD CPU

5X-133	K5-P90	K5-100	6X133+	6X150+	6X166+
\$68	\$89	\$105	\$149	\$159	\$218

RAM (Call 451-8682 for latest price)

4MB 4 EDO 8MB 8EDO 16MB 16 EDO 32MB 32 EDO	\$29	\$30	\$45	\$45	\$98	\$95	\$198	\$195
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EIDE HARD DRIVES

WESTERN DIGITAL					
Western Digital 1.08GB	10ms	5200	64K	AC21000A	\$268
Western Digital 1.3 GB	10ms	5200	128K	AC21200A	\$270
Western Digital 1.6 GB	10ms	5200	128K	AC21600	\$299
Western Digital 2.1 GB	10ms	5200	128K	AC32100	\$348
Western Digital 2.5 GB	10ms	5200	128K	AC32500	\$388
Western Digital 3.1 GB	10ms	5200	128K	AC33100	\$448

Quantum					
Quantum 2.1 GB	10ms	5400	128K	Fireball	\$338
Quantum 3.2 GB	10ms	5400	128K	Fireball	\$445
Quantum 1.7GB	11ms	5400	128K	Sirocco	\$305
Quantum 2.5 GB	11ms	5400	128K	Sirocco	\$358

Seagate					
Seagate 1.28GB	12ms	3600	64K	ST31276A	\$248
Seagate 1.28GB	10.5ms	5400	128K	ST51270A	\$255
Seagate 2.16GB	10ms	5400	256K	ST32140A	\$379

Maxtor					
Maxtor 1.3 GB	12ms	4480	128K	M71336A	\$288
Maxtor 1.7 GB	12ms	4480	128K	M81750A	\$289
Maxtor 2.0 GB	12ms	4480	128K	M72004A	\$355

SCSI HARD DRIVES

Seagate 1.08 GB	10ms	4500	128K	ST51080N	\$348
Seagate 2.1 GB	10ms	5400	512K	ST32430W	\$895
Seagate 4.26GB	10ms	5400	512K	ST15230W	\$1388

PRINTER /SCANNER/CAMERA

Canon	
BJC-240 Color	\$249
BJC-4100 /4550 Color	\$299/589
LBP460 Laser 600dpi	\$349
EPSON	
Stylus IIS / Stylus C500	\$318/398
Stylus Pro for PC & Mac	\$530
Photo PC Camera	\$589
HEWLETT PACKARD	
DeskJet 690C /820CX/870CXi	478/548/688
LaserJet 5L 600dpi 1MB	\$665
LaserJet 5P /5MP 600dpi	\$1199/1389
LaserJet 5 /6P 600dpi	\$1748/988
ScanJet 4S/4P /4C	\$278/689/1289

MULTIMEDIA

Labtec LCS-2612 20W 3D Sound w/ Subwoofer	\$148
YAMAHA M15 /M20 DSP Stereo SPK.	\$89/105
M10H Subwoofer 25W	\$139
SoundBlaster 16 PnP	\$89
SoundBlaster 32 PnP OEM	\$148
SoundBlaster 32 PnP Retail & MS Encarta '96	\$178
SoundBlaster AWE32 PnP Full	\$284
Discovery 8X Kit with SB 32 PnP 12 titles	\$348
Mitsumi EIDE CD-ROM 8X/12X	\$138/195
Acer 12X /Pioneer 10X/12X EIDE	\$189/159/188
Panasonic EIDE CD-ROM Int. 8X	\$138

NETWORKS

CNET 16BIT /PCI 32BIT Combo (COAX & RJ-45)	\$49/89
GVC 16BIT PnP /PCI 32BIT PnP Combo	\$68/98
3COM Etherlink 16bit 3C509B Combo /5 Pack	\$155/699
3COM XL PCI 3C900 Combo /3C905 10/100BT	\$178/185
INTEL EtherExpress Pro/10+ Flash	\$135
APC Back-UPS Pro PnP 280/420/650	\$199/338/428

CONTROLLERS

16 bit Super IO 2s, 1p, 1g w/16550x2	\$18/\$35
Lava ISA Dual UART16550	\$38
SCSI ISA Adaptec 1522A /1542F	\$89/279
SCSI PCI Adaptec 2940 /2940W	\$248/318
SCSI PCI Adaptec 3940UW Multichannel	\$589

KEYBOARD, MICE & CASE

BTC 104 Windows 95 Keyboard	\$22
Fujitsu 8725 /4725 /Focus 2001	\$38/59/48
Liteon Win95 Natural K.B. with TouchPad	\$85
Logitech 2B Mouse / 3B MouseMan	\$22/35
Logitech Bus/TrackMan Combo Marble	\$85/105
15"19" /24" /17" ATX tower case 200W	\$59/85/125/118

SOFTWARE

CorelKara for Windows 95	\$249
MS Access V7.0 for Windows 95 Full /Up	\$389/138
MS NT Server 4.0 Full /Up	Scall
MS NT Workstation 4.0 Full /Up	\$379/188
MS Exchange Server /w 5 Clients for NT 3.51	\$1238
MS Office PRO for Windows 95 Full /up	\$739/499
MS Plus 95 / Publisher 97	\$68/95
MS SQL Server 6.0 for NT Full /Up	\$1218/599

Tape Drive & Removable Storage

IOMEGA Zip Disk 100MB	\$19.95
Zip Drive 100MB SCSI /Para.	\$247/247
Jaz Drive 1G SCSI /Int. Ext.	\$479/628
IOMEGA Jaz PC 1GB Disk	\$128
Ditto Easy 2GB Int. /Ext.	\$195/256
Ditto Easy 3200 Int. Ext.	\$288/368
ISA Adaptec 1505 for SCSI Zip /PCI Jaz Jet SCSI	\$58/121
Jaz Traveller Parallel Port to SCSI for Jaz Ext. Drive	\$79
TAPE 3M 800MB /2.0GB /3.2GB	\$39/31/49

MODEM

SupraExpress 33.6 V.34 Voice/Fax Int. PNP	\$128
28.8/33.6 V.34 Int. PVI	\$168
Robotics Caller ID, smart ring, full d.p.	
USR 28.8/33.6 V.34 Fax/Data PnP Int.	\$178
USR 28.8/33.6 V.34 Voice Speaker Phone Int./Ext.	\$208/249

VIDEO CARD

ATI Video Boost 1 MB EDO /2MB EDO	\$89/108
ATI Mach64 WinTurbo 2 /4MB VRAM	\$278/489
ATI Graphic Pro Turbo 2 /4M VRAM	\$299/499
Stealth 3D 2MB EDO	\$148
Stealth Video 2201TV	\$288
Hardware MPAG /TV Tuner (for TV Series)	\$139/139
PCI Millennium 2 /4 VRAM	\$248/359
PCI Mystique 2 /4 SGRAM	\$240/348
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S3 Trio64+ /Cirrus 5446 64bit MPEG 1MB /2MB	\$49/68
S3 PCI 3D VIRGE 2MB EDO /4MB EDO	\$118/144

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ADI 15" 4V /17" 5V N.I. L.R.	\$438/755
Proview N.I. L.R. 28 Digital 14" /15"	\$268/355
Daytek N.I. L.R. 28 Digital 15" /17"	\$368/770
Sceptre 15" P51 17" P73/P73A	389/689/750
DX15T 15" .25, Trinitron	\$509
700T 17" .25 Trinitron	\$968
OptiQuest V775 .26 1600x1280 /AcerView 75ie	\$868/768
SONY 15" 100SX Super Fine .25	\$548
SONY 17" 200SX /SF .25	\$920/1198
NEC 15XV+ /17XV+	\$628/1098
NEC C500 /M500 15" N.I. L.R.	\$548/\$610
NEC M700 17"	\$1068

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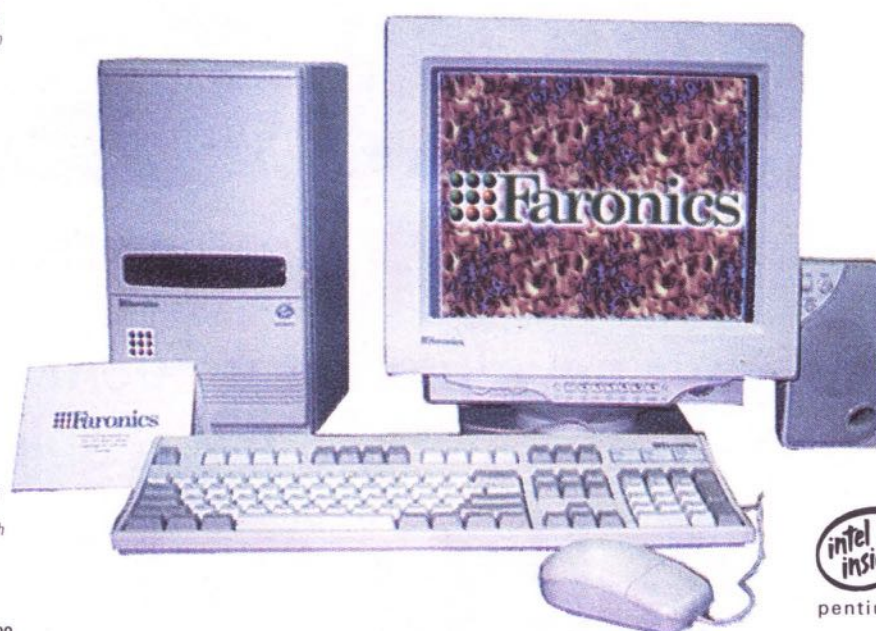
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- 1.44MB Floppy Drive
- 10X CD-ROM
- ATI 3D Xpressions 2MB PCI Video Card 64 Bit
- * comes with Mech Warrior 2 & Wipeout
- Enhanced Windows 95 Keyboard
- Microsoft Mouse w/Pad
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- 1MB PCI Video card 64 Bit
- Enhanced Windows 95 Keyboard
- Faronics Serial Mouse w/Pad
- Faronics Mini-Tower Case

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U.S. Robotics 33.6 Data/Fax Modem	\$149.00
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- Enhanced Windows 95 Keyboard • Microsoft Mouse w/Pad • Faronics Mini-Tower Case • U.S. Robotics 33.6 Data/Fax Modem • PnP 3D Surround Sound Card
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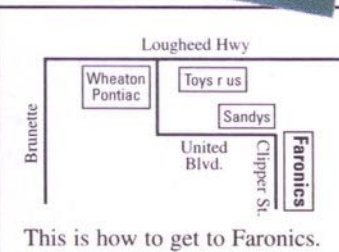
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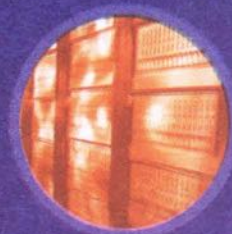
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